

## **4700 Scenarios & Scenario Development**

### **4710 Introduction**

As required by OPA-90, a most probable discharge, a maximum most probable discharge, and a worst case discharge are present for both the Northern and Southern Sectors. Scenario development and scenario driven shortfall analysis will be conducted by the Area Committees as necessary.

### **4720 Northern Sector**

#### **4721 Worst Case Discharge**

The Tank Vessel M. RONDEAU southbound enroute Long Beach in the SB channel is hit by a westbound Container Vessel SHANGHAI GLORY damaging 7 tanks onboard the RONDEAU. The RONDEAU is abandoned 8 hours later just as it breaks in two, the stern quickly sinks and the forward cargo block remains afloat leaking crude, all cargo is lost or spilled. The RONDEAU is carrying approximately 210,000 barrels of Monterey Crude.

The incident Occurs on February 20 at 1600. The winds blow at 20 kts from the SE on Feb 20, the first day of the oil spill. On Feb 21, they shift to the west and diminished slightly to eighteen knots, as the front passed through the area. The winds continued to shift to the NW over four hours and increased to 20 knots for eight hours. The wind diminished to 12 knots from the north as high pressure moved through the area the next day (22 Feb) as a result of the stalling of the high over the western desert, ENE Santa Anna winds began blowing down across the Ventura flood plain bringing 40 knot winds to the eastern Santa Barbara Channel for 24 hours. The Santa Ana winds diminished on 23 Feb and a clear weather pattern dominated the area for the next 4 days.

Affected/potentially affected areas throughout the course of this scenario include:

- 1) Mugu Lagoon, Pt. Mugu, Pt. Dume;
- 2) Santa Clarita River;
- 3) The Channel Islands (Santa Cruz and Anacapa);
- 4) Channel Islands Harbor and Mandalay Bay;
- 5) Ventura Harbor;
- 6) Port Hueneme Harbor;
- 7) Ventura County beaches/Malibu beaches in the vicinity of Pt. Dume, and;
- 8) Santa Catalina Island.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment, countermeasures and cleanup strategies, resource requirements, available resources and sources of procurement, time necessary for cleanup, disposal options and procedures, and criteria for terminating the response activity. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

#### **1) 0-2 Hours:**

CG receives notification from the T/V RONDEAU via CH16 at 1600, 20 Feb. Vessel reports its location and condition as per above scenario, states their intentions, and establishes comms schedule.

CG initiates Search and Rescue (SAR) and firefighting response per District Eleven SAR Plan and MSO LA/LB Firefighting Contingency Plan. CG helicopter launched from LAX. Search and rescue concerns are at all times priority and exclusive of all other concerns. For the purposes of this response strategy, search and rescue efforts are details are directed by the Group and not addressed in this plan.

CG initiates external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Oil Spill Prevention Response (OSPR), and CG District Eleven (DII). CG/OSPR initiates internal recalls/mobilizes Unified Command System (UCS) and Incident Command System (ICS). DII activates the Regional Response Team (RRT). Notify Scientific Support Coordinator (SSC) and mobilize SSC network. All response entities make notifications as per internal directives.

CG MSO LA/LB (predesignated Federal on Scene Coordinator (FOSC)) initiates pollution and casualty investigation efforts. Initial investigators enroute via designated SAR platform, i.e. 82 footer, 180 footer, 210 footer, or 378 footer. ETA for CG/OSPR representatives, 2 hours. OSPR investigators contacted and rendezvous established.

Confirmed vessel is American registry and operation. Responsible Party (RP) and vessel qualified individual are identified for the cleanup. RP initiates mobilization and cleanup actions as per their contingency plan. FOSC requests to access Oil Spill Liability Fund in the amount of \$2 million. Approval granted, fund ceiling to be continually reevaluated. RP activates via Clean Seas preventative boom plans for Mugu Lagoon, Santa Clarita River, Channel Islands Harbor, Ventura Harbor and Port Hueneme Harbor. Regional open water recovery assets contracted and dispatched including Clean Coastal Waters, Marine Spill Response Corporation (MSRC), Clean Seas, and Navy Supsalv. Weather limits vessels which can safely operate offshore. Clean Seas alerts dispersant aircraft/helo dispersant system. Estimated on-scene arrival times for Oil Spill Recovery Vessels (OSRV):

- Clean Waters I +6 hours
- Recovery I and II +6 hours
- Mr. Clean +4 hours
- Mr. Clean II +12 hours
- Mr. Clean III +6 hours
- California Responder +2 hours
- Pacific Responder +18 hours
- MSRC OSRV fm Astoria +72 hours
- 11 Nav Supsalv Marco V skimmers +48 hours
- Three VOSS vessels fm LA-LB +10 hours
- Clean Seas/MSRC barges +8 hours

Remote Oil Spill Sensor System (ROSSS) called out. Area Contingency Plan (ACP) Airops plan activated. Fishermen's Oil Response Team (FORT) notified and 10 vessels called out. Thirty FORT vessels are placed on standby.

ACP Comms plan activated.

Initial press release issued. District Eleven public affairs staff establishes press operations. National Strike Force Coordination Center (NSFCC) and Pacific Area Strike Team (PIAT) alerted, assets requested including PST COMCEN, OWOCR'S, salvage pumps, storage equipment. CG Public Information/Affairs Team (PIAT) dispatched.

RP/CG notifies facilities with water intakes in the area.

RP notifies bird rescue/wildlife coordinators.

**2) 02-04 hours:**

Evaluate ships' diagrams and intentions. Assess vessels current status and identify cargo and condition. Salvage issues are being actively addressed. Tugs dispatched to assist the vessels as necessary.

MR Clean I and California Responder o/s.

Address health and safety issues for response personnel and community-at-large. Site characterization team on scene developing site safety plan and identifying health and safety issues. Site entry plan completed.

RP establishes a command post at MSRC Port Hueneme/CG sets up initial command post at CG Station Channel Islands. Identified MSRC yard as primary staging area.

Receive initial information and situation report from CG platform and aircraft. Request CG AirEye support.

Receive SSC initial oil spill trajectory. Present indications are that Ventura/Channel Islands Harbor and beaches are at risk.

Start active planning and prioritizing of resources at risk. Preventative booming plan/staging ongoing for priority areas (Mugu Lagoon, Santa Clarita River, Channel Islands Harbor, Mandalay Bay, Ventura Harbor and Port Hueneme Harbor).

Establish safety zones, Broadcast Notice to Mariners, airspace safety separation scheme. Address applicable waterways management issues.

RP mobilizes 300 shoreline workers for first light operations.

Clean Seas calls out additional barges from LA-LB, eta +12 hours.

**3) 04-06 hours:**

RP Activates Hazardous Waste Operations and Emergency Response (HAZWOPER) training program at MSRC staging site.

Components of UCS forming. FOSC declares Spill of National Significance (SONS).

ROSSS airborne and transmitting images.

Health and safety parameters established.

Response resources arriving on-scene, conducting limited operations due to weather. Open water containment efforts being executed as weather allows. Clean Seas/MSRC has deployed 10,000 feet of boom offshore.

Alternate Response Technologies (ART) options considered (dispersants and in-situ burning specifically addressed).

**4) 06-10 hours:**

MR Clean III, Clean Waters I and Recovery I & II o/s.

Open water de-rated skimming capacity approximately 60,000 barrels a day.

Six Clean Seas boom boats (20-45 feet in length) are o/s. Activate additional 30 FORT vessels. Dispersant aircraft o/d at Oxnard airport.

Clean Seas and MSRC barges o/s (total storage capacity @ approximately 50,000 barrels).

NOAA trajectories arrive and data evaluated. Trajectories confirm initial conclusions and beach impact estimated for P.M. 21 Feb in vicinity of Mandalay beach. Maximize open water recovery efforts/equipment. Mobilize Pacific Coast open-water recovery assets; ETA:

MSRC Astoria +42 hours

Clean Bay +24 hours

Clean Sound +66 hours

Components of UCS continue to connect to SONS organization.

Operations decisions made based on current info. Response priorities established/detailed and mobilized for shoreline, i.e. shoreline workers. Prioritize staging operations. Recognizing the sensitivity of Channel Islands National Park, decision made not to use dispersants except on the western leading edge of the spill to mitigate progress of spill in the direction of the Channel Islands.

Procure area shoreside cleanup assets (equipment/personnel). Make initial contacts with shoreline cleanup contractors. Establish active liaison with command post.

Notify Navy assets in Port Hueneme and Air Force assets at Vandenberg AFB, and establish liaisons for air traffic separation scheme and air safety plans.

Activate volunteer portion of Area Contingency Plan.

Mobilize wildlife recovery equipment.

Additional CG assets arriving in area/on-scene, e.g. Pacific Strike Team (PST), Cutters, additional aircraft, District Response Advisory Team (DRAT), etc.

#### **5) 10-14 hours:**

MR Clean II on-scene (at hour 14). Plans for beach pre-cleaning and staging are ongoing. Interagency Shoreline Cleanup and Assessment Teams (SCATS) established for first light evaluations. Three Vessels of Opportunity Skimming System (VOSS) arrive o/s.

Elements of UCS are starting to address numerous details.

Decisions made on staging equipment, recovery plan, and waste stream plan.

#### **6) 14-18 hours:**

Pacific Responder o/s (at hour 18). The additional 30 FORT vessels o/s. Open water recovery remains limited due to weather.

Public information staff coordinates first Press Conference. They begin to issue periodic, updated press releases.

Regular overflight schedule established.

Establish daily UCS meetings. Morning meeting conducted. Local government involvement being coordinated by OSPR. Joint Command Post to be established at Civic Center.

First light overflight information and observations being compared to trajectory and ROSSS data. Conclusions support beach impact by late afternoon in the vicinity of Mandalay beach. Established Field Command Post at Mandalay beach. 300 workers arrive at Mandalay beach for precleaning and staging. 200 additional workers placed on standby. Information suggests that the Channel Islands may be threatened, dispersants issues are addressed. For the purposes of this response strategy the decision is made to apply dispersants to the leading western edge of the spill to decrease potential impact on the Channel Islands.

Managing incoming resources (personnel/equipment) at primary staging area. Day/work boat cleaning and other vessel support and logistics being coordinated at Port Hueneme.

All protective booming previously identified is now in place.

All elements of UCS are continuing to address numerous issues.

Air Operations plan on-line prioritizing overflight schedule/needs.

Natural Resource Damage Assessment (NRDA) personnel arriving, forming teams, and developing sampling plan/coordination. Network for marine mammal rehab notified. Initial recovery teams identified for bird recovery/rehabilitation.

Onshore storage, transfer, and disposal facilities identified. Tank ship destination a priority site. Additional barge from LA-LB arrives (approximately 80,000 barrel storage capacity now o/s).

Planning section working to identify National resources/equipment.

Assessing real time info to anticipate next actions.

Joint investigative teams established.

Finance section on-line and operating. National Pollution Funds Center personnel arrive.

Mobile communications suites arriving at primary staging area for subsequent redeployment (e.g. MSRC, OES, PST, CAMSPAC SF, etc.)

NOTE: This response strategy focuses on the events leading up to the full establishment of the UCS organization. From the point of UCS organization coming on-line, it deals principally with the operation issues and does not specifically address the details of each of the support functions/components. These are further described in the appropriate annexes to this plan.

## **7) 18-30 hours (Day 2):**

Weather continues to preclude full capacity open-water recovery.

ROSSS overflights continuing.

All UCS support activities continue.

Oil Spill impacts Mandalay beach. Active shoreline cleanup begins. Mainland near shore/shoreline cleanup plan is established. Approximately 5 - 10 miles of beach are impacted. Beach management issues addressed with local authorities.

Establish Channel Islands task force (specifically include National Park Service), make recommendations to UCS (e.g., diversion booming, beach surveys, overflights, [plans: NPS, NOAA-SRD] ETC.) Major field command post established on Anacapa Island. Contractors put on notice to have 500 shoreline workers available to support Channel Island ops.

Made decisions on disposal of recovered oil (i.e., recycle, store, etc).

Alert an additional 40 FORT vessels.

### **8) Day 3:**

Spill impacts Anacapa and Santa Cruz Islands. Implementing recommendations of Channel Islands task force, including concentrating open water recovery efforts on western edge of spill. 50,000 - 60,000 feet of open water boom redeployed and configured to minimize impact on Channel Islands. An additional 200 cleanup workers are deployed to Mandalay beach. Small boats and smaller skimmers positioned in key locations around Channel Islands in near shore zones.

Weather abates and open water efficiencies improve. On scene derated skimming capacity at approximately 90,000 barrels per day. At the end of day three, it is estimated that 35% of the discharged 210,000 barrels has evaporated/dissipated. A factor of 2 is used for planning purposes to calculate mouse/emulsion for recovery efforts. The result is an estimated 280,000 barrels of oil/water emulsion to recover. In keeping with planning parameters, 50% (approximately 140,000 barrels) of this is estimated to impact shoreline and 50% (approximately 140,000 barrels) to be recovered via open water operations. With adverse weather having limited operations into day 3, approximately 50,000 barrels have been recovered in open water operations at end of day three.

Overflights continue.

Daily morning and evening command briefs scheduled/on-line.

SCATS actively evaluating and recommending shoreline cleanup strategies for Anacapa and Santa Cruz Islands.

Conducting beach assessments for all impacted and potentially impacted beach areas.

Nav Supsalv Skimmers arrive.

### **9) Day 4:**

500 shoreline workers deployed to Anacapa and Santa Cruz Islands under the direction of the On-Site Command Center on Anacapa.

40 FORT vessels deployed to Anacapa Command Center.

MSRC OSRV from Astoria arrives, this adds 10,000 bbls per day capability for a total of approximately 100,000 bbls per day for the task force.

Overflights continue.

Day four estimate of recovered oil via open water cleanup ops is approximately 100,000 bbls.

### **10) Day 5-8:**

SCATS continues to evaluate and recommend shoreline cleanup strategies for Anacapa Island, Santa Cruz Island, and Mandalay beach areas.

It is estimated from trajectory and wind conditions that mainland beaches will, again, be impacted by the oil spill. This time from Pt. Mugu to Pt. Dume. Catalina Island is also at risk of being impacted by the oil spill. Estimated to impact both locations on day 9. Pt. Mugu and Catalina Island task forces established.

Beach teams dispatched to beaches between Pt. Mugu and Pt. Dume and Catalina Island. SCAT efforts expanded to include these areas. Contractors notified to provide 500 shoreline workers for Pt. Mugu and 100 workers for Catalina Isl. Beach precleaning begins. Three field command posts are established: Pt. Mugu, Pt. Dume, and Catalina Island.

Anacapa Island and Santa Cruz Island cleanup is ongoing.

Beaches south of Pt. Dume identified as potentially at-risk.

Santa Monica Bay task force established.

Day eight estimate of recovered oil via open water cleanup ops is 130,000 bbls.

#### **11) Day 9-10:**

Oil impacts beaches between Pt. Mugu and Pt. Dume on day 9.

Active cleanup is initiated. 500 shoreline workers assigned.

Oil impacts beaches on Catalina Island on day 10. 100 shoreline workers assigned. Booming of harbor by FORT vessels accomplished.

Anacapa Island and Santa Cruz Island cleanups are ongoing. Daily assessments continue. Morning and afternoon briefings continue. Full SONS on-line.

Demobilize task forces as areas are cleaned.

#### **12) Day 11-19:**

Open water cleanup continues as necessary.

Beach cleanup ongoing.

SCATs provide frequent assessments and make recommendations to UCS for 'cleanup complete' segment by segment. FOSC authorized termination of active cleanup efforts based on SCAT recommendations and all other available info. NRDA teams continue ongoing assessments.

#### **13) Day 20:**

Open water recovery operations completed/secured. Approximately 140,000 barrels recovered via open water operations. SCATs continue efforts in remaining impacted areas. Continued shoreline cleanup as necessary.

Cleanup of vessel and response equipment an important issue. Plans developed to facilitate effective equipment cleaning during demobilization phase of open water recovery efforts.

#### **14) Day 21 – Demobilization:**

SCATs provide frequent assessments and make recommendations to UCS for "cleanup complete" segment by segment. FOSC authorizes termination of active cleanup efforts based on SCAT recommendations and all other available information. NRDA teams continue ongoing assessments.

#### **4721.1 Major Resource Requirements**

Santa Catalina Island - 10,000 feet of boom; 100 workers.

Pt. Mugu to Pt. Dume beaches - 10,000 feet of boom; 500 workers.

Santa Rosa and Anacapa Isl - 10,000 feet of boom; 100 workers.

Mandalay Bay - 9,000 feet of boom; 500 workers.

Open water - 60,000 feet of boom.

Thirteen major OSRV'S, eleven Navy Supsalv vessels, and at least three tugs and barges to transfer to.

#### **4721.2 Shortfalls**

1. No local availability of fire boom. Substantial expense to maintain local stockpile.
2. Quantity and stockpiled dispersant may not be best dispersant for a given product. COREXIT 9527 is currently stockpiled. Availability of other dispersants unknown.
3. Availability of trained local volunteers and workers will be time-dependent. Initially, the number of trained volunteers and workers will be finite. As the spill progresses through time, OSHA training classes can be continuously conducted for arriving, untrained personnel. This scenario has identified a need for 1,200 shoreline workers.
4. Availability of small work boats and trained operators will limit efforts in the many inaccessible portions affected by this scenario (i.e. Mandalay Beach, Anacapa, Santa Cruz, Santa Catalina, and Pt. Mugu to Pt. Dume.)
5. Potential conflicts between investigative actions and cleanup efforts. For example, any legally imposed requirement associated with NRDA or recovered oil amount and effects may hamper/limit cleaning operations.
6. Uncertainty as to availability of cascable equipment due to regulations, permits, and operating limitations of industry in other areas from which the OSRV's are drawn. This scenario presumed the availability of all cascable 13 major OSRV'S.
7. Offshore decontamination of vessels and equipment may be a regulatory issue whereby effective means of removing oil from vessels may be hampered. Vessels required to come into port for cleaning reduce time in active skimming ops, thus reducing further the derated capacity of the skimmers.
8. Deployment of public equipment, i.e. NSF OWOCRs (who/how) needs to be addressed. RP's not required to plan for this in current contingency plans.

#### **4722 Maximum Most Probable Discharge**

An inbound Japanese car carrier PACIFIC TERROR is nearing the NW end of the Santa Barbara Channel Traffic Separation Scheme with a cargo of automobiles. A Scandinavian flag freight ship BENA is outbound from Santa Barbara Channel Traffic Separation Scheme. The two vessels collide and the BENA is damaged in the #4 and #5 cargo holds, opening them to the sea. Two of her fuel tanks are compromised as well. The PACIFIC TERROR sustains a gash in its bow above the waterline. The two vessels are locked together until the PACIFIC TERROR backs down to separate them. No injuries are



sustained. A total of 8,000 barrels of Bunker C, #6 fuel oil, are discharged into the sea. The BENA eventually sinks (towing efforts prove fruitless) 10 miles WSW of Pt. Conception.

The incident occurs on February 20 at 1200. The winds blow at 20 kts from the NW when the spill begins. Two hours later the winds swing to northerly winds at 12 knots for the next six hours. Then, for the remainder of this scenario the winds are NW at 15 knots.

Affected/potentially affected areas throughout the course of this scenario include the Channel Islands (San Miguel, Santa Rosa).

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment, countermeasures and cleanup strategies, resource requirements, available resources and sources of procurement, time necessary for cleanup, disposal options and procedures, and criteria for terminating the response activity. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

### **1) 0-2 Hours:**

CG receives notification from the T/V BENA via CH16 at 1200, 20 Feb. Vessel reports its location and condition as per above scenario, states their intentions, and establishes comms schedule.

CG initiates Search and Rescue (SAR) response per District Eleven SAR Plan. CG helicopter launched from LAX. Search and rescue concerns are at all times priority and exclusive of all other concerns. For the purposes of this response strategy, search and rescue efforts are directed by the Group and not addressed in this plan.

CG initiates external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Oil Spill Prevention Response (OSPR), and CG District Eleven (DII). CG/OSPR initiates internal recalls/mobilizes Unified Command System (UCS) and Incident Command System (ICS). DII activates the Rapid Response Team (RRT). Notify Scientific Support Coordinator (SSC) and mobilize SSC network. All response entities make notifications as per internal directives.

CG MSO LA/LB (predesignated Federal on Scene Coordinator (FOSC)) initiates pollution and casualty investigation efforts. Initial investigators enroute via designated SAR platform, i.e. 82 footer, 180 footer, 210 footer, or 378 footer. ETA for CG/OSPR representatives, 3 hours. OSPR investigators contacted and rendezvous established.

Confirmed vessel is foreign registry and operation. Responsible Party (RP) and vessel qualified individual are identified for the cleanup. FOSC notifies RP of federal assumption. FOSC requests to access Oil Spill Liability Fund in the amount of \$5 million. Approval granted, fund ceiling to be continually reevaluated. Regional open water recovery assets contracted and dispatched including Clean Coastal Waters, Marine Spill Response Corporation (MSRC), Clean Seas, and Navy Supsalv. Weather limits vessels which can safely operate offshore. Clean Seas alerts dispersant aircraft/helo dispersant system. Estimated on-scene arrival times for Oil Spill Recovery Vessels (OSRV):

Clean Waters I +18 hours  
Recovery I and II +18 hours  
MR Clean +6 hours  
MR Clean II +4 hours  
MR Clean III +11 hours  
California Responder +8 hours  
Pacific Responder +14 hours  
11 Nav Supsalv Marco V skimmers +48 hours  
Three VOSS vessels fm LA-LB +18 hours

Clean Seas/MSRC barges +16 hours

Remote Oil Spill Sensor System (ROSSS) called out. Area Contingency Plan (ACP) Airops plan activated. CG coordinating helo operations. Fishermen's Oil Response Team (FORT) notified and 10 vessels called out. Ten additional FORT vessels are placed on standby.

ACP Comms plan activated.

Initial press release issued. District Eleven public affairs staff establishes press operations. National Strike Force Coordination Center (NSFCC) and Pacific Area Strike Team (PIAT) alerted, assets requested including PST COMCEN, OWOCR'S, salvage pumps, storage equipment. CG Public Information/Affairs Team (PIAT) dispatched.

OSPR notifies bird rescue/wildlife coordinators.

Dispersant aircraft placed on standby and moved to Santa Barbara. ETA +6 hours.

Evaluate ships' diagrams and intentions. Assess vessels current status and identify cargo and condition. Salvage issues are being actively addressed. Tugs dispatched to assist the vessels as necessary.

Address health and safety issues for response personnel and community-at-large. Site characterization team on scene developing site safety plan and identifying health and safety issues. Site entry plan completed.

CG sets up initial command post at CG Station Channel Islands.

Identified Port Hueneme as primary staging area.

Receive initial information and situation report from CG platform and aircraft.

Request CG Aireye support.

Receive SSC initial oil spill trajectory. Present indications are that San Miguel and Santa Rosa Islands are at risk in approximately 40 hours.

Start active planning and prioritizing of resources at risk. Establish Channel Islands Task Force to identify protective booming and precleaning measures; make recommendations.

Establish safety zones, Broadcast Notice to Mariners, airspace safety separation scheme. Address applicable waterways management issues.

Weather has abated. Full open water derated capacity skimming begins.

CG mobilizes 50 shoreline workers for first light operations.

### **3) 04-06 hours:**

California Responder and Mr. Clean on scene.

RP Activates Hazardous Waste Operations and Emergency Response (HAZWOPER) training program at Port Hueneme staging site.

Components of UCS forming.

ROSSS airborne and transmitting images.

Health and safety parameters established.

Response resources arriving on-scene, conducting limited operations due to weather. Open water containment efforts being executed as weather allows.

Alternate Response Technologies (ART) options considered (dispersants and in-situ burning specifically addressed).

**4) 06-10 hours:**

Clean Seas/MSRC has deployed 10,000 feet of boom offshore.

Open water derated skimming capacity approximately 40,000 barrels a day. Six Clean Seas boom boats (20-45 feet in length) are o/s. Dispersant aircraft o/d at Santa Barbara airport.

NOAA trajectories arrive and data evaluated. Trajectories confirm initial conclusions and beach impact estimated for morning 22 Feb in vicinity of San Miguel/Pt. Bennett.

Components of UCS continue to connect to SONS organization.

Operations decisions made based on current info. Response priorities established/detailed and based upon information provided by Channel Island Task Force. Prioritize staging operations.

Procure area shore side cleanup assets (equipment/personnel). Make initial contacts with shoreline cleanup contractors. Establish active liaison with command post.

Notify Navy assets in Port Hueneme and Air Force assets at Vandenberg AFB, and establish liaisons for air traffic separation scheme and air safety plans.

Activate volunteer portion of-Area Contingency Plan.

Mobilize wildlife recovery equipment.

Additional CG assets arriving in area/on-scene, e.g. Pacific Strike Team (PST), Cutters, additional aircraft, District Response Advisory Team (DRAT), etc.

**5) 10-14 hours:**

Decision is made to apply dispersants to the leading edge of spill to prevent/reduce impact to Channel Islands. In situ burning determined to be impractical in current weather conditions.

Mr Clean II on-scene (at hour 14). Plans for beach pre-cleaning and staging are ongoing. Interagency Shoreline Cleanup and Assessment Teams (SCATS) established for first light evaluations. Three Vessels of Opportunity Skimming System (VOSS) arrive o/s.

Clean Seas and MSRC barges o/s (total storage capacity @ approximately 50,000 barrels).

Elements of UCS are starting to address numerous details.

Decisions made on staging equipment, recovery plan, and waste stream plan.

**6) 14-18 hours:**

Final dispersant application plans in place for first light application.

Pacific Responder o/s. The additional 10 FORT vessels o/s. Open water recovery remains limited due to weather.

Regular overflight schedule established.

Managing incoming resources (personnel/equipment) at primary staging area. Day/work boat cleaning and other vessel support and logistics being coordinated at Port Hueneme.

All elements of UCS are continuing to address numerous issues.

Air Operations plan on-line prioritizing overflight schedule/needs.

Planning section working to identify national resources/equipment. Assessing real time info to anticipate next actions.

Joint investigative teams established.

Mobile communications suites arriving at primary staging area for subsequent redeployment (e.g. MSRC, OES, PST, etc.)

NOTE: This response strategy focuses on the events leading up to the full establishment of the UCS organization. From the point of UCS organization coming on-line, it deals principally with the operation issues and does not specifically address the details of each of the support functions/components. These are further described in the appropriate annexes to this plan.

**7) 18-30 hours (0600-1800 Day 2):**

Public information staff coordinates first Press Conference. They begin to issue periodic, updated press releases.

Establish daily UCS meetings. Morning meeting conducted. Local government involvement being coordinated by OSPR. Joint Command Post to be established at Station Channel Islands.

First light overflight information and observations being compared to trajectory and ROSSS data. Conclusions support beach impact by the morning of 22 Feb in the vicinity of San Miguel Island. 50 workers arrive at primary staging area for pre-cleaning and staging.

Natural Resource Damage Assessment (NRDA) personnel arriving, forming teams, and developing sampling plan/coordination. Network for marine mammal rehab notified. Initial recovery teams identified for bird recovery/rehabilitation.

Onshore facilities for disposal identified.

ROSSS overflights continuing.

Activate additional 10 FORT vessels.

All UCS support activities continue.

Clean Waters vessels (3) arrive o/s. Open water de-rated skimming capacity at approximately 80,000 bbls per day.

Made decisions on disposal of recovered oil (i.e., recycle, store, etc).

Application of dispersants begin.

### **8) Day 3:**

Spill impacts San Miguel Island/Pt. Bennett. Implementing recommendations of Channel Islands task force, including concentrating open water recovery efforts on western edge of spill. 30,000 feet of open water boom deployed and configured to minimize impact on Channel Islands. Small boats and smaller skimmers positioned in key locations around Channel Islands in near shore zones.

At the end of day three, it is estimated that 10% of the discharged, 8,000 barrels has evaporated/naturally dissipated. Emulsification factor is low. The result is an estimated 7,200 barrels of oil to recover. Approximately 5,000 barrels have been recovered in open water operations at end of day three. It is estimated that dispersant application has effected and additional 700 barrels, leaving approximately 1500 barrels yet to be recovered.

#### **Overflights continue.**

Trajectory estimates indicate impact to Santa Rosa Island likely on day 4. Initiate protective/deflective booming on the North side of Santa Rosa and South Point.

Daily morning and evening command briefs scheduled/on-line.

SCATS actively evaluating and recommending shoreline cleanup strategies for San Miguel and Santa Rosa Islands. Conducting beach assessments for all impacted and potentially impacted beach areas.

Nav Supsalv Skimmers arrive.

Continuing to apply dispersants to areas 3 miles off island coasts.

### **9) Day 4:**

SCATS continues to evaluate and recommend shoreline cleanup strategies for San Miguel and Santa Rosa Islands.

Overflights continue.

Moderate sheening and small patches impacting North and South sides of Santa Rosa, and Western San Miguel.

Open water efforts continuing, but chasing only sheens.

### **10) Day 5:**

Overflights indicate only light sheening remains in open water areas.

Securing Clean Seas vessels, Pacific Responder, California Responder, Mr. Clean III, command center at Port Hueneme.

Task force continues to assess and recommend Channel Island clean up actions for ongoing operations.

Morning and afternoon briefings continue.

Cleanup of vessel and response equipment an important issue. Plans developed to facilitate effective equipment cleaning during demobilization phase of open water recovery efforts.

### **11) Day 6:**

SCATs provide frequent assessments and make recommendations to UCS for "cleanup complete" segment by segment. FOSC authorized termination of active cleanup efforts based on SCAT recommendations and **all** other available info.

Securing all open water assets.

NRDA demobilizing in Port Hueneme.

Demobilize task forces as areas are cleaned.

#### **4722.1 Major Resource Requirements**

Santa Miguel Island - 50 workers.

Open water - 30,000 feet of boom;

Nine major OSRV'S, eleven Navy Supsalv vessels, and at least two tugs and barges to transfer to.

#### **4722.2 Shortfalls**

1. Quantity and stockpiled dispersant may not be best dispersant for a given product. COREXIT 9527 is currently stockpiled. Availability of other dispersants unknown.
2. Availability of trained local volunteers and workers will be time-dependent. Initially, the number of trained volunteers and workers will be finite. As the spill progresses through time, OSHA training classes can be continuously conducted for arriving, untrained personnel. This scenario has identified a need for 50 shoreline workers.
3. Availability of small work boats and trained operators will limit efforts in the many inaccessible portions affected by this scenario (i.e. San Miguel and Santa Rosa Islands.)
4. Potential conflicts between investigative actions and cleanup efforts. For example, any legally imposed requirement associated with NRDA or recovered oil amount and effects may hamper/limit cleaning operations.
5. Uncertainty as to availability of cascable equipment due to regulations, permits, and operating limitations of industry in other areas from which the OSRV's are drawn. This scenario presumed the availability of all cascable 9 major OSRV'S.
6. Offshore decontamination of vessels and equipment may be a regulatory issue whereby effective means of removing oil from vessels may be hampered. Vessels required to come into port for cleaning reduce time in active skimming ops, thus reducing further the de-rated capacity of the skimmers.
7. Deployment of public equipment, i e. NSF OWOCRs (who/how) needs to be addressed. RP's not required to plan for this in current contingency plans.

#### **4723 Most Probable Discharge**

The 45 foot Fishing vessel (F/V) "Codface" is in the process of docking at the fish unloading dock in Ventura Harbor Village. During this time a deck hand on board the vessel inadvertently turns on the bilge pump which in turn discharges approximately 3 gallons of diesel fuel and water mixture into the water. The Master of the vessel notices the sheen and continues to dock the vessel and prepare for unload as if nothing happened.

The incident occurs on May 01 at 0700. The winds are out of the NW at 10-12 kts with daytime temperatures of 80 degrees for the entire model spill.

Affected/potentially affected areas throughout the course of this scenario include Ventura Village Harbor, slip 26-29.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment and cleanup strategies, resource requirement, time necessary for cleanup, and criteria for termination the event. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

### **1) 0.5-01 Hours:**

CG MSD Santa Barbara receives notification from the Ventura Harbor Patrol via land line at 0800, 01 May. The Harbor Patrol reports that upon receiving a report from the dock master at Ventura Village Marina, an investigation revealed about a 01 gallon diesel spill with sheen spread out between slips 26-29. And only one F/V called the Codface in the area at that time. The Harbor Patrol was detaining the vessel until arrival of the CG.

CG initiated external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G), and Ventura County Water Quality.

CG MSD Santa Barbara (pre-designated Federal on Scene Coordinator (FOSC)) initiates pollution investigation efforts. Duty Pollution Investigators dispatched to scene to initiate pollution investigation and confirm cleanup actions needed. ETA for CG representatives is 15 minutes.

CG investigators arrive on scene verify information set forth in scenario but are unable to ' identify path to the F/V Codface as most of the sheen has dispersed due to tidal action and evaporation. The master of the vessel Mr. Wong Lee reluctantly accepts responsibility for the incident, but claims that the turning on of the bilge pump was an accident. Mr. Wong Lee, with the assistance of his crew, placed sorbent pads into the water to absorb the remaining sheen and hired "Small Spill Inc." to properly remove and dispose of the pads.

Resources and estimated response time of hired cleanup and salvage contractors is as follows:

Ventura Harbor Patrol	+1.0 hrs
1 small truck & trailer(Small Job Waste Co.)	+2.5 hrs

### **2) 1-2 hours:**

MSO LA/LB receives report from CG Investigators and F&G on scene that evaporation and tidal action has all but removed the diesel fuel from the water with the exception of a few small pockets of sheen trapped within the harbor slips. F&G confirms a low threat risk to wildlife.

CG/F&G, with the assistance of local authorities, verifies that there are no water intakes in the area.

Further investigation reveals that the cause of the spill-was due to a deck hand on the vessel turning on the bilge pump, determined by later admission to CG.

Health and safety issues of site safety plan considered for waste removal personnel.

**Waste removal zone identified, no safety zone necessary, no Broadcast Notice to Mariners necessary.**

### **3) 2-3 hours.**

Response resources arriving on-scene; Small Spill Inc. truck and trailer with related cleanup gear.

Cleanup staging operations activated. Planning strategy by RP based on input from CG, F&G, and Contractors for waste removal adjacent to slip 26-29.

Sorbent recovery operations commence. Removal of sorbent pads by punt, bagged and hauled up the pier to Small Spills Inc. container

#### **4) 3-4 hours:**

Evaluation of cleanup and meeting of CG, RP, F&G, and cleanup contractors conducted on scene. The meeting has determined that only very small amounts of unrecoverable sheen remains in the water. The CG and OF&G instruct the crew of the M/V "Codface" about the violations of state and federal laws when oil is discharged into navigable waters. The vessel would be allowed to be continue commercial activities pending continued investigation and possible civil penalties.

Final determination of meeting members after thorough waterside inspection is that all cleanup efforts to be secured.

#### **4723.1 Potential Shortfalls**

General lack of understanding of violation to discharge oil into the navigable waters by foreign commercial boat operators.

Limited local CG response resources available for geographical responsibility.

Only recall available of local CG resources after normal working hours.

All aspects of cleanup operations should be conducted and concluded by all parties involved in a response including federal, state, and local agencies, responsible party, and the contractor.

#### **4724 Platform Discharge**

An oil platform in the Santa Barbara area reports a pipeline rupture offshore associated with its drilling activities. Approximately 2200 barrels of Monterey crude were released.

The incident occurs on February 20 at 1600. Storm conditions exist with the winds blowing at 25 kts from the SW and seas/swells are 8-10 feet, on Feb 20, the first day of the oil spill. Eighteen hours later ESE winds at 15-20 knots prevail. It is noted that current considerations are significant in this area for purposes of strategy information.

Affected/potentially affected areas throughout the course of this scenario include:

- 1) Mugu Lagoon, Pt. Mugu, Pt. Dume;
- 2) Santa Clarita River;
- 3) The Channel Islands (Santa Cruz and Anacapa);
- 4) Channel Islands Harbor and Mandalay Bay;
- 5) Ventura Harbor;
- 6) Port Hueneme Harbor;



7) Ventura County beaches/Malibu beaches in the vicinity of Pt. Dume, and;

8) Santa Catalina Island.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment, countermeasures and cleanup strategies, resource requirements, available resources and sources of procurement, time necessary for cleanup, disposal options and procedures, and criteria for terminating the response activity. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

**1) 0-2 Hours:**

CG receives notification from the platform at 1600, 20 Feb.

Platform reports its condition as per above scenario, states their intentions, and establishes comms schedule.

CG initiates external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Oil Spill Prevention Response (OSPR), Minerals Management Service (MMC), and CG District Eleven (DII). CG/OSPR initiates internal recalls/mobilizes Unified Command System (UCS) and Incident Command System (ICS). DII activates the Rapid Response Team (RRT). Notify Scientific Support Coordinator (SSC) and mobilize SSC network. All response entities make notifications as per internal directives.

CG MSO LA/LB (pre-designated Federal on Scene Coordinator (FOSC)) initiates pollution and casualty investigation efforts. Initial investigators enroute. ETA for CG/OSPR representatives, 2 hours via RP provided helo. CG water platform ETA +4 hours. OSPR investigators contacted and rendezvous established.

Responsible Party (RP) and qualified individual are identified for the cleanup. RP initiates mobilization and cleanup actions as per their contingency plan and makes additional required notifications. FOSC requests to access Oil Spill Liability Fund in the amount of \$1 million. Approval granted, fund ceiling to be continually reevaluated. Regional open water recovery assets contracted and dispatched including Clean Coastal Waters, Marine Spill Response Corporation (MSRC), Clean Seas, and Navy Supsalv. Weather limits vessels which can safely operate offshore. Clean Seas alerts dispersant aircraft/helo dispersant system. Estimated on-scene arrival times for Oil Spill Recovery Vessels (OSRV):

Clean Waters I +18 hours

Recovery I and II +18 hours

MR Clean +6 hours

MR Clean II +4 hours

MR Clean III +14 hours

California Responder +8 hours

Pacific Responder +14 hours

11 Nav Supsalv Marco V skimmers +48 hours

Three VOSS vessels fm LA-LB +18 hours

Clean Seas/MSRC barges +16 hours

Remote Oil Spill Sensor System (ROSSS) called out. Area Contingency Plan (ACP) Airops plan activated. Fishermen's Oil Response Team (FORT) notified and 10 vessels called out. Thirty FORT vessels are placed on standby. RP gets helo overflight.

ACP Comms plan activated.

Initial press release issued. District Eleven public affairs staff establishes press operations. National Strike Force Coordination Center (NSFCC) and Pacific Area Strike Team (PIAT) alerted, assets requested including PST COMCEN, OWOCR'S, storage equipment. CG Public Information/Affairs Team (PIAT) dispatched.

RP notifies bird rescue/wildlife coordinators.

RP places dispersant aircraft on standby and moves them to Santa Barbara. ETA +6 hours.

Address health and safety issues for response personnel and community-at-large. Site characterization team on scene developing site safety plan and identifying health and safety issues. Site entry plan completed.

## **2) 02-04 hours:**

Evaluate spill from aircraft to determine size.

RP mitigating casualty as per SOP'S. No further discussion on casualty for the purposes of this scenario.

RP establishes a command post at MSRC Port Hueneme/CG and OSPR set up initial command post at MSRC.

Identified Elwood pier as primary staging area; secondary staging Clean Seas yard, MSRC, Gaviota pier.

Receive SSC initial oil spill trajectory. Present indications are that Pt. Bennett and San Miguel Island are at risk. Estimated time of impact is approximately 48 hours from time of spill.

Establish close liaison with NPS and Marine Sanctuary.

Start active planning and prioritizing of resources at risk.

Establish safety zones, Broadcast Notice to Mariners, airspace safety separation scheme. Address applicable waterways management issues. CG platform o/s.

RP mobilizes 50 shoreline workers for first light operations. Establish Channel Islands Task Force to identify protective booming, pre-cleaning measures, and make recommendations.

## **3) 04-06 hours.**

RP Activates Hazardous Waste operations and Emergency Response (HAZWOPER) training program at MSRC staging site.

Components of UCS forming.

ROSSS airborne and transmitting images. Dispersant aircraft on deck at Santa Barbara airport.

Response resources arriving on-scene, Mr. Clean and Mr. Clean II conducting limited operations due to weather. Open water containment efforts being executed as weather allows. Clean Seas/MSRC has deployed 4,500 feet of boom offshore.

Alternate Response Technologies (ART) options considered (dispersants and in-situ burning specifically addressed).

## **4) 06-10 hours:**

California responder o/s. Open water de-rated skimming capacity approximately 40,000 barrels a day. Four Clean Seas boom boats (45 feet in length) are o/s. Activate additional 10 FORT vessels. Clean Seas and MSRC barges o/s (total storage capacity @ approximately 50,000 barrels).

NOAA trajectories arrive and data evaluated. Trajectories confirm initial conclusions and beach impact estimated for P.M. 22 Feb in vicinity of San Miguel Island. Maximizing open water recovery efforts/equipment.

Components of UCS continue to connect to SONS organization.

Operations decisions made based on current info. Response priorities established/detailed and based on recommendations of Channel Islands Task Force. Prioritize staging operations.

Procure area shore side cleanup assets (equipment/personnel). Make initial contacts with shoreline cleanup contractors. Establish active liaison with command post.

Notify Navy assets in Port Hueneme and Air Force assets at Vandenberg AFB, and establish liaisons for air traffic separation scheme and air safety plans.

Activate volunteer portion of Area-Contingency Plan.

Mobilize wildlife recovery equipment.

Additional CG assets arriving in area/on-scene, e.g. Pacific Strike Team (PST), Cutters, additional aircraft, District Response Advisory Team (DRAT), etc.

#### **5) 10-14 hours:**

Decision made to allow use of dispersants on SW leading edge of spill to limit impact on San Miguel. In situ burning determined to be impractical in current weather conditions.

Clean Seas vessels on-scene to begin open water recovery response; open water de-rated at approximately 60,000 barrels per day. Plans for beach pre-cleaning and staging are ongoing.

#### **6) 14-18 hours:**

Pacific Responder o/s (at hour 14). Activate 10 FORT vessels for first light operations. open water recovery remains limited due to weather.

Interagency Shoreline Cleanup and Assessment Teams (SCATS) established for first light evaluations. Three Vessels of Opportunity Skimming System (VOSS) arrive o/s.

Elements of UCS are starting to address numerous details.

Decisions made on staging equipment, recovery plan, and waste stream plan.

Public information staff coordinates first Press Conference. They begin to issue periodic, updated press releases.

Regular overflight schedule established.

Establish daily UCS meetings. Morn'ing meeting conducted. Local government involvement being coordinated by OSPR. Joint Command Post to be established at MSRC.

First light overflight information and observations being compared to trajectory and ROSSS data. Conclusions support beach impact by late afternoon 22 Feb, in the vicinity of Pt. Bennett. Navy Supsalv demobilized.

Managing incoming resources (personnel/equipment) at primary staging area. Day/work boat cleaning and other vessel support and logistics being coordinated at Port Hueneme.

**All elements of UCS are continuing to address numerous issues.**

Air Operations plan on-line prioritizing overflight schedule/needs.

Natural Resource Damage Assessment (NRDA) personnel arriving, forming teams, and developing sampling plan/coordination. Network for marine mammal rehab notified. Initial recovery teams identified for bird recovery/rehabilitation.

Onshore facilities for disposal identified.

Joint investigative teams established.

Finance section on-line and operating. National Pollution Funds Center personnel arrive.

Mobile communications suites arriving at MSRC for subsequent re-deployment (e.g. MSRC, OES, PST, etc.)

NOTE: This response strategy focuses on the events leading up to the full establishment of the UCS organization. From the point of UCS organization coming on-line, it deals principally with the operation issues and does not specifically address the details of each of the support functions/components. These are further described in the appropriate annexes to this plan.

**7) 18-30 hours (Day 2 from 1000):**

Weather continues to preclude full capacity open-water recovery.

ROSSS overflights continuing.

All UCS support activities continue.

Application of dispersants begins.

Channel Islands Task Force continues to evaluate and make recommendations to UCS.

**8) Day 3:**

Spill impacts San Miguel Island/Pt. Bennett. Implementing recommendations of Channel Islands task force, including concentrating open water recovery efforts on western edge of spill. 20,000 feet of open water boom deployed and configured to minimize impact on Channel Islands. Small boats and smaller skimmers positioned in key locations around Channel Islands in near shore zones. Diversion booming installed at Pt. Bennett. Beach pre-cleaning as NPS authorizes.

At the end of day three, it is estimated that 45% of the discharged 2,200 barrels has evaporated (35%)/naturally dissipated (10%). 55% (1,210 bbls) remain. Emulsification factor is 1.8. The result is an estimated 2,200 barrels of oil to recover. With adverse weather having limited operations into day 3, approximately 1,600 barrels have been recovered in open water operations at end of day three. 600 barrels remain. It is estimated that dispersant application is 30% effective and has effected and additional 180

barrels, leaving approximately 420 barrels yet to be recovered. All oil recovered in open water is sheen and small patches which have evaded mechanical and dispersant efforts.

Overflights continue.

Daily morning and evening command briefs scheduled/on-line.

SCATS actively evaluating and recommending shoreline cleanup strategies for San Miguel Island. Conducting beach assessments for all impacted and potentially impacted beach areas.

**9) Day 4:**

SCATS continues to evaluate and recommend shoreline cleanup strategies for San Miguel Island.

Open water recovery assets, MSRC demobilized. Clean Seas vessel remains offshore.

Securing secondary staging areas.

Cleanup of vessel and response equipment an important issue. Plans developed to facilitate effective equipment cleaning during demobilization phase of open water recovery efforts.

Overflights continue.

**10) Day 5:**

Securing/demobilizing Clean Seas vessel.

Task force continues to assess and recommend Channel Island clean up actions for ongoing operations.

Morning and afternoon briefings continue.

Overflights continue.

Vessel cleaning continues in Port Hueneme.

**4724.1 Major Resource Requirements:**

Santa Miguel Island - 50 workers.

Open water - 20,000 feet of boom;

Nine major OSRV'S, eleven Navy Sup@alv vessels, and at least two tugs and barges to transfer to.

**4724.2 Shortfalls:**

1. Quantity and stockpiled dispersant may not be best dispersant for a given product. COREXIT 9527 is currently stockpiled.
2. Availability of other dispersants unknown.
3. Availability of trained local volunteers and workers will be time-dependent. Initially, the number of trained volunteers and workers will be finite. As the spill progresses through time, OSHA training classes can be continuously conducted for arriving, untrained personnel. This scenario has identified a need for 50 shoreline workers.

4. Availability of small work boats and trained operators will limit efforts in the many inaccessible portions affected by this scenario (i.e. San Miguel Island)
5. Potential conflicts between investigative actions and cleanup efforts. For example, any legally imposed requirement associated with NRDA or recovered oil amount and effects may hamper/limit cleaning operations.
6. Uncertainty as to availability of cascable equipment due to regulations, permits, and operating limitations of industry in other areas from which the OSRV's are drawn. This scenario presumed the availability of all cascable 9 major OSRV'S.
7. Offshore decontamination of vessels and equipment may be a regulatory issue whereby effective means of removing oil from vessels may be hampered. Vessels required to come into port for cleaning reduce time in active skimming ops, thus reducing further the iterated capacity of the skimmers.
8. Deployment of public equipment, i.e. NSF OWOCRs (who/how) needs to be addressed. RP's not required to plan for this in current contingency plans.

#### **4725 Potential Resource Shortfall Analysis**

Under Commandant Note 16471, dated September 30, 1992, the Area Committees are tasked as part of their ongoing work to "...describe shortfalls, including administrative and policy shortfalls, and options for alleviating them (including): equipment, personnel, funds, minimum response times, location and identification of additional resources." In support of this requirement, the Coast Guard joined forces in 1994 with the state of California to investigate the issue of potential shortfalls.

In addition to providing important information to responders and planners on the west coast, this shortfall data is expected to also have a potential use for the state of California in meeting this requirements. Under the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Section 8670.19 of the Government Code) the Administrator shall "...conduct a comprehensive review of all oil spill contingency plans for each area to determine if deficiencies exist in equipment, personnel, training, and other areas determined to be necessary to ensure the best achievable protection of the coastline."

This requirement, which has been named the Coastal Protection Review (CPR), will examine the plans and make conclusions on the adequacy of protection systems throughout California marine waters. Since the Vessel and Facility Contingency Plans will heavily reference the Area Plans, it follows that the Area Plans themselves will be a good source of information for the State's CPR. Given the joint need for this information by both the USCG and the State of California, a decision was made by the senior management of both organizations to work together and gather whatever information was possible on potential shortfalls.

This section describes the general, or most obvious, potential shortfalls that have been determined to exist by the members of the Area Committees. Where appropriate, possible options for alleviating the identified shortfalls have been suggested. These conclusions have been reached by the committee reviewing scenario and trajectory information contained in the Area Plans and examining it in detail. Wherever a perceived shortfall has been identified in equipment, personnel, policy or other areas it has been documented.

Work is proceeding in this area continuously and more information with regards to potential resource shortfalls is expected to be completed by October, 1994. It is the goal of the Area Committees to produce a more analytical and detailed shortfall analysis by this date, using a specific methodology to be developed. If this more specific shortfall analysis can be produced as planned, it will be mailed out as an errata at that time (any questions as to whether an errata was produced for the 1994 Area Plans on shortfalls can be directed to the OSPR Planning Branch at 916-327-9988).

## **4726 Area Specific Shortfall Analysis**

The following is the general shortfall analysis, by category, for San Luis Obispo, Santa Barbara, and Ventura Counties. For this analysis, the Chevron Estero Bay Maine Terminal potential worst case scenario was used. This worst case scenario is based on the following: loaded tanker loses entire cargo (380,000 barrels of San Joaquin Valley Crude); vessel grounds on rocky coast around Point Buchon; areas at risk include Point Sur south to Point Conception; and spill occurs during spring time.

### **4726.1 Notification Shortfalls**

During previous spills in the area, County Office of Emergency Services, Harbor Patrol, Archaeologists, Northern Chumash Council and the Site Safety Officer have not been immediately notified.

If a spill occurs during off-hours the response by an OSPR field biologist may be delayed due to the current on-call schedule policy. This policy calls for only one biologist to be on-call for the southern California area (and one for northern California) during off hours (weekends, holidays and after hours). That person may be as far away as San Diego, a commute time of approximately six hours. It is likely that other biologists who are located closer to a given spill site can and will be reached but technically, this is not guaranteed.

### **4726.2 Beach Access Shortfalls**

There are some sites for which protection strategies have been developed but which are not accessible by heavy equipment. These sites include: Broken Bridge Creek (A-4-148); Little Pico Creek (A-4-108); Pico Creek (A-4-110); Santa Rosa Creek (A-4-112); Cayucos Creek (A-4-115); San Antonio Creek (A-4-004); and La Honda Creek (A-4-070).

A Memorandum of Understanding (MOU) is needed with the State Department of Parks and Recreation for beach access onto State Parks, e.g. Arroyo del Puerto Inlet (A-4-146), San Simeon Creek (A-4-111), Leffingwell Creek (A-4-146), Santa Rosa Creek (A-4-112), Cayucos Creek and State Beach (A-4-115 & 116), and Morro Strand State Beach (A-4-117, 118 & 136). Pre-designated access routes/corridors for crews and heavy equipment are needed to avoid sensitive sites (biological and cultural).

Not all land owners are known and/or have been contacted. The following sites occur on private property: San Carpoforo Creek (A-4-100), Arroyo de la Cruz Inlet (A-4-104), Arroyo del Oso Creek (A-4-149), the sandy beach south of Piedras Blancas lighthouse (A-4-102), Oak Knoll Creek (A-4-147), Broken Bridge Creek (A-4-148), Little Pico Creek (A-4-108) and Villa Creek (A-4-114).

Access by some response personnel to the coastline along Vandenberg Air Force Base may be delayed due to Base security issues.

### **4726.3 Planning Shortfall**

Section 3300's Check-off Lists need to be a stand-alone document.

### **4726.4 Personnel Shortfall**

There is currently no mechanism for maintaining large numbers of HAZWOPER trained personnel for oil spill cleanup, especially for shoreline cleanup, and wildlife rehab personnel. In a spill of this magnitude, adequate numbers of personnel would not be available.

The number of OSPR field staff would be a shortfall with a large spill such as in this scenario.

### **4726.5 Airfield Shortfall**

The only large landing strip in San Luis Obispo county to bring in equipment on a C-130, which is used by the USCG Pacific Strike Team, is the Paso Robles Airport which is approximately 45 miles east of the nearest coastline. This lag time is a potential shortfall. A MOU exists between San Luis Obispo County and Camp San Luis enabling the use of the National Guard for helicopter overflights, per the colonel's discretion.

#### **4726.6 Information Shortfall**

Not all sensitive sites have been visited such as Diablo Canyon (A-4-137) and Rocky Platform (A-4-132).

Environmentally sensitive sites in the back bay of Morro Bay (A-4-119) need to be mapped and response strategies developed.

Local ocean current data (tides and eddies) is lacking.

OSPR does not currently have set cleanup levels. During past spills, Regional Water Quality Control; Board cleanup levels have been used. If cleanup levels (other than visually clean) are to be made in the field, field equipment needs to be provided.

#### **4726.7 Technology Shortfall**

There is a lack of technology to protect rocky cliffs, rock platforms, and sandy beaches with moderate to high energy regimes. The following sites fall under this category: La Cruz Rock (A-4-103), Point Piedras Blancas (A-4-101), Piedras Blancas Sandy Beach (A-4-102), Rocky Platform (B-4-106), Rock Offshore Little Pico Creek (A-4-109), Rocky Platform, Cambria Air force Base (B-4-132), Rocky Platforms (B-4-133 and 134), Cayucos Point (B-4-113), Morro Strand State Beaches (A-4-117 & **118**), Morro Bay Sand Pit (B-4-135), Lion Rock (A-4-123), Deer Canyon Rocky Platform (B-4-138), Pecho Rock (B-3-124), Avila Rock (B-4-139), Bird Rock (A-4-140), Rocky Platform (B-4-141), Pismo Beach (B-3-142), Pismo-Oceano Beach Clam Reserves (A-4-129 & 143), Guadalupe Beach (B-3144), Point Arguello (A-4-008), And Point Conception (B/A-4-010).

The effectiveness of existing technology and equipment for open water containment, storage, and recovery is limited and dependent upon conditions such as wind and currents.

**In-situ burning and dispersant technologies including dispersant quick approval zones are still being developed. Success of these technologies depends, in large part, on having an adequate number of appropriately trained personnel to implement them.**

#### **4726.8 Equipment Shortfall**

There may be a shortfall of heavy equipment operators that are HAZWOPER trained, and therefore, there may be a shortage of heavy equipment available. Oil Spill Response Organizations do not **have** prearranged contracts with heavy equipment operators, and therefore, there could be a timelag for delivery of heavy equipment. This could be especially true with large spills. There are approximately 22 creeks in this area of impact with the suggested response strategy being a sediment dike, most of which if not all, would require heavy equipment for construction.

There are a few creeks where at times, lack of sand would make it difficult or impossible to construct a sediment dike. These creeks include **Oak** Knoll Creek (A-4-147), Arroyo del Puerto Creek (A-4-107), Little Pico Creek (A-4-108), Cayucos Creek (A-4-115), Little Cayucos Creek (B-4-116) and La Handa Creek (A-4-070). Sand bags could be used, but would take more time.

Equipment for open water containment, recovery, and storage is a potential shortfall.

There is a lack of Fire Boom necessary for any in-situ burning that may be approved.



Since most oil spill response equipment is located in Santa Barbara and Ventura County's, the added time to transport equipment to San Luis Obispo County is a potential shortfall.

#### **4726.9 Wildlife Rehabilitation Shortfall**

The OSPR Guidance Document "For Oiled Wildlife Care" released in 1993 reported on the existing capabilities of wildlife rehabilitation organizations in California to rescue, transport, clean, treat and rehabilitate oiled marine wildlife. The results were based upon surveys, site visits by OSPR staff, and information provided by the organization.

In a separate analysis, OSPR used information concerning the numbers of marine wildlife rescued during recent west coast oil spills, the distribution and abundance of California's marine birds and mammals, their vulnerability to oil, and their proximity to areas of special concern for oil spill risks to project probable rehabilitation case loads. The differences between existing capabilities and projected case loads represent the shortfall in oil spill response capabilities at this time.

California legislation enacted in 1993 would create an oiled wildlife care network by 1997 if funding is forthcoming. At this present time, however, under any spill scenario, existing capabilities fall far short of probable wildlife rehabilitation case loads.

In OPA Planning Area Ventura, Santa Barbara and San Luis Obispo County's, there are existing capabilities to care for about 250 birds. OSPR has projected rehabilitation case loads of up to 4,000 birds. In this Planning Area there is currently a deficiency of supplies, materials, equipment and facilities to care for 3,750 birds. Marine mammal care facilities are available at the Marine Mammal Center of Santa Barbara, however, seasonally the Center reaches capacity and no specific provisions have been made to care for oiled marine mammals.

#### **4730 Southern Sector**

##### **4731 Worst Case Discharge**

The Tank Vessel CINATIT (VLCC) enters the southbound shipping lane just north of green bell buoy "7" (TL) from the seaward side. It is steaming at 9-10 knots, its cargo is approximately 1.5 million barrels of North slope crude. A collision occurs with the foreign container vessel LIPTON which is on the wrong side of the lane. The collision ruptures four of the CINATIT's tanks and causes an engine room explosion that weakens the vessel's keel. Two of the LIPTON's port side fuel tanks are leaking fuel, but have not yet caught fire. All efforts to salvage the CINATIT fail and the ongoing fire prevents lightering. The CINATIT breaks in two, the stern portion quickly sinks, and the bow, with four leaking tanks, but intact, drifts at water's edge.

The incident occurs on February 19 at midnight. The winds blow at 20 kts from the SE on Feb 19, the first day of the oil spill. On Feb 20, they shift from the SE to the S, then to the NW, then to N. The winds return to blow out of the NW at midnight on the morning of Feb 21, and remain from the NW at 15 kts for the rest of the modeled spill.

Affected/potentially affected areas throughout the course of this scenario include:

- 1) Santa Catalina;
- 2) The LA/LB Port Complex including Least Tern Nesting Site;
- 3) Santa Monica Bay South beaches and Palos Verdes;

- 4) San Clemente Island;
- 5) All Orange County shoreline and Bolsa Chica Wetlands,  
and;
- 6) San Diego County shoreline.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment, countermeasures and cleanup strategies, resource requirements, available resources and sources of procurement, time necessary for cleanup, disposal options and procedures and criteria for terminating the response activity. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

**1) 0-2 Hours.**

CG receives notification from the T/V CINATIT via CH16 at 0000, 19 Feb. Vessel reports its location and condition as per above scenario, states their intentions, and establishes comms schedule.

CG initiates Search and Rescue (SAR) and firefighting response per District Eleven SAR Plan and MSO LA/LB Firefighting Contingency Plan. CG helicopter launched from LAX. Search and rescue concerns are at all times priority and exclusive of all other concerns. For the purposes of this response strategy, search and rescue efforts are directed by the Group and not addressed in this plan.

CG initiates external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Oil Spill Prevention Response (OSPR), and CG District Eleven (D11). CG/OSPR initiates internal recalls/mobilizes Unified Command System (UCS) and Incident Command System (ICS) and D11 activates the Regional Response Team (RRT). Notify Scientific Support Coordinator (SSC) and mobilize SSC network. All response entities make notifications as per internal directives.

CG MSO LA/LB (pre-designated Federal on Scene Coordinator (FOSC)) initiates pollution and casualty investigation efforts. Initial investigators enroute via designated SAR platform, i.e. 82 patrol boat, 180 cutter, 210 cutter, or 378 cutter. ETA for CG/OSPR representatives, 2 hours. OSPR investigators contacted and rendezvous established.

Confirmed vessel is of foreign registry and operation. Responsible Party (RP) and vessel qualified individual identified for the cleanup. FOSC requests to access Oil Spill Liability Fund in the amount of \$30 million. Approval granted, fund ceiling to be continually reevaluated. FOSC notifies RP of federal assumption. CG initiates oil spill cleanup efforts. Regional open water recovery assets contracted and dispatched including Clean Coastal Waters, Marine Spill Response Corporation (MSRC), Clean Seas, and Navy Supsalv. Weather limits vessels which can safely operate offshore. Clean Seas alerts dispersant aircraft/helo dispersant system. Estimated on-scene arrival times for Oil Spill Recovery Vessels (OSRV):

Clean Waters I +2.5 hours  
Recovery I and II +2.5 hours  
MR Clean +8 hours  
Mr Clean II +12 hours  
Mr. Clean III +6 hours  
California Responder +6 hours  
Pacific Responder +24 hours  
MSRC OSRV fm Astoria +76 hours  
11 Nav Supsalv Marco V skimmers +48 hours  
Three VOSS vessels fm LA-LB +6 hours  
Clean Seas barges +4 hours

MSRC barges +8 hours

Remote Oil Spill Sensor System (ROSSS) called out. Area Contingency Plan (ACP) Airops plan activated. Fishermen's Oil Response Team (FORT) notified and 10 vessels called out. Thirty FORT vessels are placed on standby.

ACP Comms plan activated.

Initial press release issued. District Eleven public affairs staff establishes press operations. National Strike Force Coordination Center (NSFCC) and Pacific Area Strike Team (PIAT) alerted, assets requested including PST COMCEN, OWOCS's, salvage pumps, storage equipment. CG Public Information/Affairs Team (PIAT) dispatched.

RP/CG notifies facilities with water intakes in the area.

RP notifies bird rescue/wildlife coordinators.

## **2) 02-04 hours:**

Evaluate ships' diagrams and intentions. Assess vessel's current status and identify cargo and condition. Salvage issues are being actively addressed. Tugs dispatched to assist the vessels as necessary.

Clean Waters I, Recovery I and II o/s.

Address health and safety issues for response personnel and community-at-large. Site characterization team on scene developing site safety plan and identifying health and safety issues. Site entry plan completed.

Establish initial Joint Command Post for UCS at Marine Safety Office LA/LB. Identify primary staging area.

Receive initial information and situation report from CG platform and aircraft. Request CG Aireye support.

RP/Qualified Individual initiates ICS and internal response org.

Alert aircraft and schedule ROSSS overflights for assessment.

The CINATIT breaks in two and the stern sinks, leaving the bow awash with four leaking tanks.

Receive SSC initial oil spill trajectory.

Start active planning and prioritizing of resources at risk. Preventative booming plan/staging initiated for priority areas (Ballona Creek, Marina Del Rey, Malibu Creek, Bolsa Chica Wetlands, Alamitos, Newport Bay, etc.)

Establish safety zones, Broadcast Notice to Mariners, airspace safety separation scheme. Address applicable waterways management issues.

Initiate salvage operations. Tugs dispatched to handle floating bow and assist LIPTON as necessary.

## **3) 04-06 hours:**

RP Activates Hazardous Waste Operations and Emergency Response (HAZWOPER) training program at primary staging site.

Components of ICS/UCS forming.

Health and safety parameters established.

Response resources arriving on-scene. Unable to conduct operations due to weather.

Alternate response technologies (ART) options considered (dispersants and in-situ burning specifically addressed).

First light overflights. Tracking Datum Marker Bouy (DMB) deployed by SAR resources.

**4) 06-10 hours:**

First light overflights and data evaluated. Trajectories indicate landfall a few days away. Maximize open water recovery efforts/equipment. Mobilize Pacific Coast open-water recovery assets

MSRC Astoria +42 hours

Clean Bay +24 hours

Clean Sound +66 hours

MSRC Hawaii +7 days

FOSC declares Spill of National Significance (SONS). Components of UCS meet with SONS organization.

Initial local/regional callouts at predesignated locations (i.e. Marina del Rey, Palos Verdes point, command post, Bolsa Chica, etc.).

Operations decisions made based on current info. Response priorities established/detailed and mobilized for shoreline i.e. shoreline workers. Prioritize staging operations. Establish primary Staging Area. Recognizing the sensitivity of Santa Monica Bay, decision made not to use dispersants except on leading edge of the spill to mitigate progress of spill in the direction of Santa Catalina Island.

Mobilize Navy assets in Port Complex and San Diego e.g. boom, skimmer.

Activate volunteer portion of Area Contingency Plan.

Mobilize wildlife recovery system.

Procure area shore side cleanup assets (equipment/personnel). Make initial contacts with shoreline cleanup contractors. Establish active liaison with command post.

Additional CG assets arriving in area/on-scene, e.g. Pacific Strike Team (PST), Cutters, additional aircraft, District Response Advisory Team (DRAT), etc.

**5) 10-14 hours:**

Fishing vessels/vessels of opportunity identified. Three Vessels of Opportunity Skimming System (VOSS)'s dispatched. Decisions made on how to handle "day" boats, i.e. cleaning, logistics, support. Establish boat cleaning at King Harbor, logistics section at King Harbor, crew relief, etc.) Line up storage barges.

Elements of ICS/UCS are starting to address numerous details.

Regular overflight schedule established.

Open-water recovery vessels arriving as per ETA's in 0-2 hours.

**6) 14-18 hours:**

Public information staff coordinates first Press Conference.

Water intakes identified and company's informed/liaison's established with command post.

Establish daily UCS meetings each afternoon. Local government involvement being coordinated by OSPR.

Site Safety Plan developed by Safety Officer. On-scene Safety Officer conducting on-site monitoring.

Public information staff issuing periodic, updated press releases.

Managing incoming resources (personnel/equipment) at primary staging area.

Maintaining protective booming.

Open-water recovery remains infeasible due to weather. Open-water recovery assets continue to arrive. No impact to shoreline as of this time.

Air Operations plan on-line prioritizing overflight schedule/needs.

Natural Resource Damage Assessment (NRDA) personnel arriving, forming teams, and developing sampling plan/coordination. Stranding network for marine mammal rehab notified. Initial recovery teams identified for bird recovery/rehabilitation.

Onshore storage and transfer facilities identified. Tank ship destination a priority site. Storage and transport barges enroute. Onshore facilities for disposal identified.

Planning section identifying National resources/equipment. Assessing real time info to anticipate next actions.

Joint investigative teams established.

Finance section on-line and operating. National Pollution Funds Center personnel arrive.

Mobile communications suites arriving primary staging area for subsequent redeployment (e.g. MSRC, OES, PST, CAMSPAC SF, etc.)

EMS on-site at the primary staging area. Field kitchens and catering contracts established.

NOTE: This response strategy focuses on the events leading up to the full establishment of the ICS organization. From the point of ICS organization coming on-line, it deals principally with the operation issues and does not specifically address the details of each of the support functions/components. These are further described in the appropriate annexes to this plan.

**7) 18-30 hours:**

Weather continues to preclude open-water recovery. ROSSS overflights continuing.

Clean Seas third OSRV arrives.

All ICS support activities continue.

**8) Day 2 (from 0630 20 Feb):**

At this point trajectory and overflight information indicate that Santa Catalina Island is at risk. Logistics and planning team dispatched to evaluate options/strategies.

Local shoreline staging decisions made. Secondary staging sites established from Venice Pier south to Palos Verdes for shoreline cleanup efforts including a Field Command Post. Develop shoreline cleanup and protection plan as per site summary information, Annex A, Appendix IV, Tabs B, C & D. Contractors notified to provide 500 shoreline cleanup workers. Pre-cleaning of beaches initiated. Identify and procure kelp cutters for Palos Verdes point. Establish interagency SCAT's (Shoreline Cleanup Assessment Teams). SCAT's develop worksheet and initiate beach surveys.

Beach management issues addressed with local authorities.

MSRC San Francisco OSRV arrives.

Major field command post established on Santa Catalina and liaison with harbormaster established. Contractors put on notice to have 500 shoreline workers available to support Santa Catalina ops.

Morning and Evening command briefs scheduled/on-line.

#### 9) Day 3:

Weather abates and open-water recovery efforts commence. On-scene recovery capacity approximately 90,000 bbls/day. At the end of day three, it is estimated that 30% of the discharged approximately 1.5 million barrels has evaporated/dissipated. A factor of 2 is used for planning purposes to calculate mouse/emulsion for recovery efforts. The result is an estimated two million barrels of oil/water emulsion to recover. In keeping with planning parameters, 50% (approximately 1 million barrels) of this is estimated to impact shoreline and 50% (approximately 1 million barrels) to be recovered via open-water operations. At end of day three, approximately 50,000 bbls have been recovered in open water operations.

Overflights continue.

Three VOSS' on-line.

Develop a diversion boom plan for Santa Catalina Island based on site summary sheet and environmental sensitivity data (Catalina Harbor is boomed). A minimum of 10,000 feet of boom is needed. Identify a major need for small workboat support (boats and operators).

With the potential recognized for the leading edge of the oil to reach Santa Catalina Island, all parties agree that due to harbor seal pupping on the island, dispersant application on leading edge is tested/applied. For the purposes of this strategy, minimal effectiveness is assumed.

Response Task Forces established for Palos Verdes and North, Santa Catalina Island, LA/LB Harbor area.

#### 10) Day 4:

Oil impacts Palos Verdes. Shoreline cleanup workers begin active cleanup. Temporary storage and disposal of shoreline cleanup debris being addressed.

MSRC OSRV from Astoria arrives. Total derated open-water skimming capacity at approximately 100,000 barrels per day.

All elements of UCS continue applicable efforts.

Approximately 100,000 bbls have been recovered in open water operations at end of day four.

### **11) Day 5:**

Oil impacts Santa Catalina Island. Major logistics issues/limited access to shoreline and staging being addressed. Cleanup operations ongoing. Planning section recognizes possibility of impact on San Clemente Island and makes plans for that contingency. Active links with Navy/MSO San Diego personnel established. JRT activated. San Clemente Task Force established.

Day five estimate of recovered oil via open water cleanup ops is approximately 140,000 bbls.

### **12) Day 6-11:**

It is estimated from trajectory and wind conditions that Orange County beaches will be impacted by the oil by day 11. Orange County Task Force established.

Santa Catalina and Palos Verdes point cleanup is ongoing.

Beach teams dispatched to Orange County Beaches and SCAT efforts expanded to include these areas. Contractors notified to provide 500 shoreline workers. Beach precleaning begins. Two field command posts are established on Orange County beaches.

San Diego beaches identified as potentially at-risk. San Diego task force established.

At the end of day 11, approximately 344,000 bbls recovered in open water operation.

### **13) Day 11-29:**

Oil impacts Orange County Beaches on day 11 at Huntington/Newport. Active cleanup is initiated. Palos Verdes and Catalina cleanups are ongoing. Daily assessments continue. AM and PM briefings in place. Full SONS on-line.

SCATs provide frequent assessments and make recommendations to UCS for "cleanup complete" segment by segment. FOSC authorizes termination of active cleanup efforts based on SCAT recommendations and all other available info. NRDA teams continue ongoing assessments.

Demobilize task forces as areas are cleaned.

### **14) Day 30:**

Open-water recovery operations completed/secured. Approximately 1 million barrels recovered via open-water ops. SCATs continue efforts in remaining impacted areas. Continued shoreline cleanup as necessary.

Cleanup of vessel and response equipment an important issue. Plans developed to facilitate effective equipment cleaning during demob phase of open-water recovery efforts.

### **15) Day 31 – Demobilization:**

SCATs provide frequent assessments and make recommendations to UCS for "cleanup complete" segment by segment. FOSC authorizes termination of active cleanup efforts based on SCAT recommendations and all other available info. NRDA teams continue ongoing assessments.

### **4731.1 Major Resource Requirements**

Santa Catalina Island - 20,000 feet of boom; 1,000 workers.

Palos Verdes/Santa Monica Bay beaches - 5,000 feet of boom; 500 workers.

LA/LB Harbor area - 20,000 feet of boom; 500 workers.

Orange County - 20,000 feet of boom; 2,000 workers.

San Diego County - 60,000 feet of boom; 2,000 workers.

Offshore/Open water - 80,000 feet of boom;

San Clemente Island - 20,000 feet of boom; 1,000 workers.

Twelve major OSRVs, eleven Navy Supsalv vessels, and at least four tugs and barges to transfer to.

#### **4731.2 Shortfalls**

1. No local availability of fire boom. Substantial expense to maintain local stockpile.
2. Quantity and stockpiled dispersant may not be best dispersant for a given product. COREXIT 9527 is currently stockpiled. Availability of other dispersants unknown.
3. Availability of trained local volunteers and workers will be time-dependent. Initially, the number of trained volunteers and workers will be finite. As the spill progresses through time, OSHA training classes can be continuously conducted for arriving, untrained personnel. This scenario has identified a need for 7,700 shoreline workers.
4. Availability of small work boats and trained operators will limit efforts in the many inaccessible portions affected by this scenario (i.e. Santa Catalina, PV Point, San Clemente Island).
5. Potential conflicts between investigative actions and cleanup efforts. For example, any legally imposed requirement associated with NRDA or recovered oil amount and effects may hamper/limit cleaning operations.
6. Uncertainty as to availability of cascable equipment due to regulations, permits, and operating limitations of industry in other areas from which the OSRVs are drawn. This scenario presumed the availability of all cascable 12 major OSRVs.
7. Offshore decontamination of vessels and equipment may be a regulatory issue whereby effective means of removing oil from vessels may be hampered. Vessels required to come into port for cleaning reduce time in active skimming ops, thus reducing further the derated capacity of the skimmers.
8. Deployment of public equipment, i.e. USCG's VOSS (who/how) needs to be addressed. RP's not required to plan for this in current contingency plans.

#### **4732 Maximum Most Probable Discharge**

The Tank Vessel FRACTURED is offloading North Slope Crude on 19 February at the El Segundo Marine Terminal. The vessel discovers it is leaking oil and estimates approximately 3,000 barrels of North Slope Crude has entered the water from a suspected crack in the hull below the waterline.

The incident occurs on February 19 at midnight. The winds blow at 20 kts from the SE on Feb 19, the first day of the oil spill. The seas are 8 - 10 feet. On Feb 20, they shift from the SE to the S, then to the NW, then to N. The winds return to blow out of the NW at midnight on the morning of Feb 21, and remain from the NW at 15 kts for the rest of the modeled spill.



Affected/potentially affected areas throughout the course of this scenario include:

- 1) Marina Del Rey;
- 2) Ballona Creek;
- 3) King Harbor;
- 4) All Santa Monica Beaches and Malibu/Topanga Beaches.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment, countermeasures and cleanup strategies, resource requirements, available resources and sources of procurement, time necessary for cleanup, disposal options and procedures and criteria for terminating the event. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

**1) 0-2 Hours:**

CG receives notification from the T/V FRACTURED via CH16 at 0000, 19 Feb. Vessel reports its location and condition as per above scenario, states their intentions, and establishes comms schedule. Vessel estimates approximately 3,000 barrels may have been released. Responsible party and qualified individual are identified for the cleanup. Responsible party stops all transfer operations and actively pursues effort to identify source including hiring divers. Facility draws back on pipeline and investigates possibility of pipeline damage.

CG initiates external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Oil Spill Prevention Response (OSPR), and CG District Eleven (D11). CG/OSPR initiates internal recalls/mobilizes Incident Command System (ICS) and Unified Command System (UCS) and D11 activates the RRT. Notify Scientific Support Coordinator (SSC) and mobilize SSC network.

CG MSO LA/LB (predesignated Federal on Scene Coordinator (FOSC)) initiates pollution and casualty investigation efforts. Initial CG and OSPR investigators enroute via designated CG/RP platform.

Confirmed vessel is of United States registry. RP and qualified individual are identified for the cleanup. Responsible party (RP) initiates internal recall and implements their plan. FOSC requests to access Oil Spill Liability Fund in the amount of \$500,000. Approval granted, fund ceiling to be continually reevaluated. RP initiates oil spill cleanup efforts including, for example, immediate booming of the vessel/area using boom from support vessel maintained on-scene as weather permits. Regional open-water recovery assets contracted and dispatched including Clean Coastal Waters, Marine Spill Response Corporation (MSRC), Clean Seas, and Navy Supsalv. Weather limits which vessels can safely operate offshore. Clean Coastal Waters alerts dispersant aircraft/helo dispersant system (+6 hours). Estimated on-scene arrival times for Oil Spill Recovery Vessels (OSRV):

Clean Waters I +3.5 hours  
Recovery I and II +4.5 hours  
MR Clean II +7 hours  
California Responder +6 hours  
11 Nav Supsalv Marco V skimmers +48 hours

Clean Coastal Waters dispatches four Recon boats. Remote Oil Spill Sensor System (ROSSS) notified. Area Contingency Plan (ACP) Airops plan activated. Fishermen's Oil Response Team (FORT) notified and 10 vessels called out. Thirty FORT vessels are placed on standby.

ACP Comms plan activated.

Initial press release issued. District Eleven public affairs staff establishes press operations. National Strike Force Coordination Center (NSFCC) and Pacific Area Strike Team (PIAT) alerted, assets requested including PST COMCEN, OWOCR's, salvage pumps, storage equipment. CG Public Information/Affairs Team (PIAT) dispatched.

Preventive booming plans for Marina Del Rey, King Harbor and Malibu Creek activated. Responsible party mobilizes 200 shoreline workers for first light. Primary staging area and RP command post established at Chevron Beach Center.

RP/CG notifies facilities with water intakes in the area.

RP notifies bird rescue and wildlife coordinators.

## **2) 02-04 hours:**

Evaluate ship's diagrams and intentions. Assess vessel's current status and identify cargo and condition. Tugs dispatched to assist the vessel as necessary.

Address health and safety issues for response personnel and community-at-large. Site characterization team on-scene developing site safety plan and identifying health and safety issues. Site entry plan completed.

Receive initial information and situation report from CG platform and aircraft. Request CG Aireye support.

Alert aircraft and schedule ROSSS overflights for assessment.

No additional oil appears to be entering the water. Tank testing for water indicates crack in hull of one of the vessel's cargo tanks.

Receive SSC initial oil spill trajectory. Indicates all of Santa Monica Bay at risk. RP organizing an additional 300 workers for beach pre-cleaning and staging at first light.

Establish safety zones, Broadcast Notice to Mariners, airspace safety separation scheme. Address applicable waterways management issues.

Start active planning and prioritizing of resources at risk. Preventative booming plan/staging ongoing for priority areas (Ballona Creek, Marina Del Rey, Malibu Creek, King Harbor).

200 California Conservation Corps personnel called out.

## **3) 04-06 hours:**

RP activates Hazardous Waste Operations and Emergency Response (HAZWOPER) training program at primary staging site.

Components of UCS forming. Establish initial Joint Command Post (UCS) at Chevron Beach Center.

Preliminary on-site hazards assessment completed by RP. Health and safety parameters, characterization, and site safety plan completed.

Response resources arriving on-scene (Clean Waters, California Responder, Recovery 1 and 2; approx. 57,000 per day derated skimming capacity). Operations limited due to weather. Mobilizing three Vessels of Opportunity Skimming System (VOSS) in LA/LB (approximately 9,500 bbl per day derated skimming

capacity; ETA +18 hours). Fishing vessels and vessels of opportunity identified Mariner's Oil Spill Team (MOST).

Alternate Response Technologies (ART) options considered (dispersants and in-situ burning specifically addressed).

First light overflights. ROSSS airborne and transmitting images. Marina Del Rey, Ballona Creek, and King's Harbor boomed. RP hiring storage barges from LA/LB (approximately 20,000 bbls storage capacity - +6 hours).

Vessel repair plans initiated. For the purposes of this response strategy, repair activities are not discussed further.

#### **4) 06-10 hours:**

First light overflights and data being evaluated. Oil impacts Dockweiler Beach and Marina Del Rey breakwater. Beach cleaning resources dispatched to impacted areas. Secondary staging area established at Dockweiler. Workers continue to stage arriving equipment at primary staging area. Second Mr. Clean (Clean Seas vessel) arrives on-scene. MSRC Pacific Responder (San Francisco) put on alert.

FOSC declares Spill of National Significance (SONS). Components of UCS meet with SONS organization.

Operations decisions made based on current info. Response priorities established/detailed and mobilized for shoreline i.e. shoreline workers. Prioritize staging operations. Establish additional secondary staging areas.

Activate volunteer portion of Area Contingency Plan.

Mobilize wildlife recovery system. Network for marine mammal rehab notified.

Additional CG assets arriving in area/on-scene e.g. Pacific Strike Team (PST), Cutters, additional aircraft, District Response Advisory Team (DRAT), etc.

Regular overflight schedule established.

Public information staff coordinates first Press Conference.

#### **5) 10-14 hours:**

Elements of UCS are starting to address numerous details. UCS command level briefing conducted each morning.

Preventive measures completed at Malibu Creek.

Recognizing the sensitivity of Santa Monica Bay, decision made not to use dispersants.

Decisions made on how to handle "day" boats i.e. cleaning, logistics, support. Establish boat cleaning at King Harbor, logistics section of King Harbor, crew relief, etc.)

Site Safety Plan developed by Safety Officer. On-scene Safety Officer conducting on-site monitoring.

#### **6) 14-18 hours:**

Oil impacts Malibu beaches vicinity of Malibu Creek. Identify and organize interagency SCAT's (Shoreline Cleanup Assessment Teams). SCAT's develop worksheet and initiate beach surveys.

Establish daily UCS meetings PM and AM. Local government involvement being coordinated by OSPR.

Public information staff issuing periodic, updated press releases.

Managing incoming resources (personnel/equipment) at primary and secondary staging areas.

Maintaining protective booming.

Open-water recovery remains limited due to weather.

Air Operations plan on-line prioritizing overflight schedule/needs.

Natural Resource Damage Assessment (NRDA) personnel arriving, forming teams, and developing sampling plan/coordination. Initial recovery teams identified for bird recovery/rehabilitation.

Onshore storage and transfer facilities identified. El Segundo Marine Terminal a priority site. Storage and transport barges o/s. On-shore facilities for disposal identified. Assessing real time info to anticipate next actions.

Joint investigative teams established.

Field command post established in Malibu.

Finance section on-line and operating. National Pollution Funds Center personnel arrive.

Mobile communications suites arriving primary staging area for subsequent redeployment (e.g. MSRC, OES, PST, CAMSPAC SF, etc.). One dispatched to Malibu.

NOTE: This response strategy focuses on the events leading up to the full establishment of the UCS organization. From the point of UCS organization coming on-line, it deals principally with the operation issues and does not specifically address the details of each of the support functions/components. These are further described in the appropriate annexes to this plan.

#### **7) 18-30 hours:**

Weather continues to limit open-water recovery. ROSSS overflights continuing.

All UCS support activities continue.

#### **8) Day 2 (from 0600 20 Feb):**

At this point, oil has impacted approximately 5-10 miles of Malibu Beaches/Santa Monica Bay Beaches.

Secondary staging sites established from Venice Pier south to Palos Verdes for shoreline cleanup efforts including a Field Command Post. Develop shoreline cleanup and protection plan as per site summary information. Identify and procure kelp cutters for Palos Verdes Point.

Morning and Evening command briefs scheduled/on-line.

At the end of day two, it is observed that most of the oil remaining on the open water is lightly concentrated or mostly sheen. The Pacific Responder is stood down and Navy Supsalv is secured. Recovery from open-water skimming operations is estimated as 250 bbls given limited ability to operate effectively in the weather conditions stated with a rapidly spreading/thinning oil.

### **9) Day 3:**

Weather abates and open-water recovery efforts continue. On-scene derated recovery capacity estimated at approximately 80,000 bbls/day. However, all that remains in the open water is heavy sheen. Open-water skimming becomes marginally effective under these conditions. At the end of day three, it is estimated that 52% of the discharged 3,000 barrels has naturally dispersed (approximately 1,600 bbls). It is also estimated that 1,050 bbls has evaporated. At the end of 24 hours, the water content of the discharged oil was approximately 75%. This leaves, at the end of day three, approximately 670 bbls of recoverable oil. Using standard planning tool of 50% on the beaches and 50% in open water, it is estimated that at the end of day three approximately 335 bbls would have remained in the water had no recovery been accomplished, and 335 bbls impacted the shoreline.

Shoreline impact ranges from Malibu down to Dockweiler with heavier concentrations of oil in the Malibu area. Impacted shoreline is affected by "stripes" of oil ranging from 3 inches wide to 3 feet wide and spotty. Approximately 10-15 miles of beach are impacted. SCAT's actively evaluating and recommending shoreline cleanup strategies and determining "how clean is clean" (signing off) segment by segment. Reoiling is light. Demobilizing and shifting shoreline assets as SCAT's recommend/UCS approve.

Overflights continue. All Clean Seas vessels and the California Responder are secured. All Clean Coastal Waters assets and three VOSS' remain on-scene.

Temporary storage and disposal of cleanup debris is being addressed.

### **10) Day 4:**

Demobilizing and shifting shoreline assets as SCAT's recommend/FOSC approves. SCAT's evaluating reported sheen impacts from El Segundo down to Palos Verdes Point.

All elements of UCS continue applicable efforts.

Three VOSS' secured.

### **11) Day 5:**

Demobilize shoreline assets as SCAT's recommend/FOSC approves.

Ten Fishing Vessels secured.

Clean Waters I secured.

### **10) Day 6:**

Demobilize shoreline assets as SCAT's recommend/FOSC approves. Continuing beach surveys.

All on-water recovery ops secured.

### **11) Day 7 – Demobilization:**

Demobilize staging areas and shoreline ops as areas are cleaned.

## **4732.1 Major Resource Requirements**

Malibu/Topanga Beaches - 1,000 feet of boom; 1,000 workers.

Santa Monica Beaches/area - 5,000 feet of boom; 1,000 workers.

Offshore/Open-water - 20,000 feet of boom

Seven major OSRVs and boat crews, eleven Navy Supsalv vessels, and at least two tugs and barges to transfer to.

#### **4732.2 Shortfalls**

1. Quantity and stockpiled dispersant may not be best dispersant for a given product. COREXIT 9527 is currently stockpiled. Availability of other dispersants unknown.
2. Availability of trained local volunteers and workers will be time-dependent. Initially, the number of trained volunteers and workers will be finite. As the spill progresses through time, OSHA training classes can be continuously conducted for arriving, untrained personnel. This scenario has identified a need for 2,000 trained shoreline workers.
3. Non-availability of small work boats and trained operators will limit efforts in the many inaccessible portions affected by this scenario (i.e. Santa Catalina, Palos Verdes Point, San Clemente Island).
4. Potential conflicts between investigative actions and cleanup efforts. For example, any legally imposed requirement associated with NRDA or recovered oil amount and effects may hamper/limit cleaning operations.
5. Uncertainty as to availability of cascable equipment due to regulations, permits, and operating limitations of industry in other areas from which the OSRVs are drawn. This scenario presumed the availability of all cascable 12 major OSRVs.
6. Offshore decontamination of vessels and equipment may be a regulatory issue whereby effective means of removing oil from vessels may be hampered. Vessels required to come into port for cleaning reduce time in active skimming ops, thus reducing further the derated capacity of the skimmers.
7. Deployment of public equipment, i.e. NSF OWOCRs (who/how) needs to be addressed. RP's not required to plan for this in current contingency plans

#### **4733 Most Probable Discharge (Los Angeles County)**

The Motor Vessel Slippery Deck is in the process of receiving bunkers (receiving fuel) to its outboard port bunker station from the Tank Barge Floss 101, at Matson Container Terminal at L/A Berth 209. During this time the vessel discovers that approximately 100 gallons of IFO 180 (No.4 fuel oil) has overflowed out of the port fuel tank vents, of which approximately 30 gallons entered the waters of Los Angeles Harbor.

The incident occurs on June 12 at 0600. The winds are out of the NW AT 5-7 kts for the entire model spill.

Affected/potentially affected areas throughout the course of this scenario include: Los Angeles Harbor, Berths 207-209.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment and cleanup strategies, resource requirement, time necessary for cleanup, and criteria for terminating the event. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

#### **1) 01-02 Hours:**

CG receives notification from the T/B Floss 101 via CH 16 at 0630, 12 June on behalf of the M/V Slippery Deck. The barge reports its location and situation as per above scenario, states that there has been a bunkering overflow, that they have shut down the transfer and that most of the oil is contained under the pier and within the previously deployed precautionary boom. The barge also states that although they are not accepting responsibility for the spill they have dispatched their Barge Tug Big Spool to the scene in order to deploy additional boom to contain the oil.

CG initiated external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Los Angeles Fire Boat, Los Angeles Harbor Patrol, MSO Investigations Dept.

CG MSO LA/LB (pre-designated Federal on Scene Coordinator (FOSC)) initiates pollution investigation efforts. Duty Pollution Investigators dispatched to scene to initiate pollution investigation and confirm cleanup actions needed. ETA for CG representatives is 15 minutes.

MSO LA/LB confirms if vessel/barge is of United States or foreign registry. M/V Slippery Deck agent contacted to meet with CG investigators on scene. CG investigators on scene contact MSO LA/LB, verify information set forth in scenario and identify spill path and probable RP. M/V Slippery Deck accepts responsibility for the cleanup, initiates vessel's contingency plan and hires Zoom & Boom cleanup contractors for the cleanup effort. MSO LA/LB dispatches second team to assist in coordination of cleanup effort/evidence gathering. Resources and estimated response time of hired Cleanup Contractors is as follows:

LA Fire Boat	+0.5 hours
Spill Container Vessel (Zoom & Boom)	+2.0 hours
75 Contracted Laborers (Zoom & Boom)	+3.0 hours
5 Ton Truck (Zoom & Boom)	+2.0 hours
Vacuum Truck (Zoom & Boom)	+3.0 hours
2 Motorized boats (Zoom & Boom)	+0.5 hours
Other Equipment (Zoom & Boom)	+3.0 hours

ACP Commsplan in standby

District Eleven public affairs staff briefed by MSO LA/LB in the event of inquiries.

## **2) 2-3 hours:**

MSO LA/LB receives report from CG Investigators and F&G on-scene that early preventative booming by barge tug has all of the oil, with the exception of minor sheen, contained and stable beneath LA Berths 207-209 and that there is no substantial threat to wildlife.

RP/CG, with the assistance of local public works officials, verifies that there are no facilities with water intakes in the area.

Evaluation of ship's diagrams, records and logs by CG and RP reveal that the cause of the spill was due to improper valve operations which caused the #3 port fuel tank to overflow aboard the M/V Slippery Deck.

## **3) 3-4 hours:**

Health and safety issues of site safety plan for response personnel, cleanup contractors and community-at-large identified and addressed.

Port notified of cleanup zone, safety zone established necessary, Broadcast Notice to Mariners if necessary.

Response resources arrive on-scene. (# Zoom & Boom spill container vessel, vacuum truck, 5 ton truck, 75 subcontracted laborers, and all other equipment mentioned above as per scenario arrives.)

Cleanup staging operations activated, cleanup activities strategy by RP based on input from CG, F & G, Contractors, and current information. Staging area established pier side LA Berth 211.

**4) 4-6 hours:**

Cleanup operations commence. Placement of additional hard booming with sorbents to separate affected areas on pier from vessels involved and to minimize sheening. Vacuum truck commences skimming of oil on surface water beneath affected piers. 75 laborers in punt boats work sorbents, guide vacuum nozzle, and commence pier piling and rock isolation for hand wipe cleanup.

**5) 6-12 hours:**

Most of the heavy, water-borne oil has been removed. The M/V Slippery Deck and Tank Barge Floss 101 are outside the boom undergoing hull stain and deck cleaning.

**6) 12-18 hours:**

Waterside cleanup of pier pilings 90% completed and all heavy oil, except for sheen, recovered from water. Tank Barge Floss 101 deemed clean and allowed to depart. Examination of deck indicates that side cleaning of M/V Slippery Deck indicates that additional cleaning is necessary. Hand degreaser is used on ladders, handrails and walkways.

**7) 18-24 hours (Day 2):**

Final details of cleanup operation continue. Contractor commences removal of solid sorbent waste from water to authorized containers on pier for later transport.

Morning evaluation of cleanup and meeting of CG, RP, F&G, and cleanup contractors conducted on scene. The meeting has determined that only small amounts of light sheen remain in water with all heavy staining removed from adjacent rocks and pier pilings. It was also determined that the M/V Slippery Deck was satisfactorily cleaned and would be allowed to shift berth pending continued investigation and possible civil penalties.

Final determination of meeting members after thorough waterside inspection is that all cleanup efforts can be secured.

**4733.1 Potential Shortfalls**

1. Slow on-scene availability and reliability of subcontracted trained labor crews, due to union conflicts.
2. General slow response of contractors to scene for rapid boom deployment as a key issue.
3. Proper nighttime boom monitoring by contractors for tidal changes to often improperly monitored, allowing unidentified amounts of oil to escape.
4. Subcontracted night lighting fixtures often not effective or cost effective for nighttime cleanup. Suspend night cleanup until day if possible.
5. Coordination of pier piling cleanup with low tide accessibility beneath piers, requires high manpower consideration and cost.



6. All deemed completions of cleanups confirmed by thorough waterside inspections beneath piers and consensus of involved parties.
7. All aspects of cleanup operations should be conducted and concluded by all parties involved in a response including federal, state, local agencies; responsible parties; and the contractor.

#### **4734 Most Probable Discharge (Orange County)**

The Motor Vessel "No Problema," a private 38 foot pleasure craft is in the process of returning to its private dock in Bayshores, Newport Beach. During this time the owner discovers a small shaft leak with about 15 gallons of diesel fuel and water mixture in his engine compartment. The owner turns on the vessel's overboard discharge pump and retires his vessel to the dock for morning repairs. The next morning the owner's wife discovers the vessel has sank and that a flow of diesel fuel from the vessel's engine room has formed a pool of approximately 5 gallons on the surface of the water.

The incident occurs on August 12 at 1200. The winds are out of the NW at 5-7 kts with daytime temperatures of 80 degrees for the entire model spill.

Affected/potentially affected areas throughout the course of this scenario include Newport Beach Harbor, private boat slip 44.

The required response action elements are presented in chronological sequence. These include initial actions, spill response organization, containment and clean-up strategies, terminating the event. The following response strategy for this scenario and the estimated times are for planning purposes only and do not reflect performance standards.

##### **1) 01-02 hours:**

CG receives notification from the Newport Harbor Patrol via land line at 1230, 12 June on behalf of the owner of the sunken vessel Mr. Richard Wealthman. The Harbor Patrol reports the vessel's location and situation as per above scenario, and that about five gallons of diesel which had escaped from the vessel's engine room was contained within a 200 ft boom they had deployed.

CG initiated external and internal notifications including CA Office of Emergency Services (OES), CA Dept of Fish and Game (F&G) Orange County Water Quality.

CG MSO LA/LB (pre-designated Federal on Scene Coordinator (FOSC)) initiates pollution investigation efforts. Duty Pollution Investigators dispatched to scene to initiate pollution investigation and confirm clean-up actions needed. ETA for CG representatives is 45 minutes.

MSO LA/LB confirms vessel ownership by state boating number. The owner of the sunk vessel Mr. Richard Wealthman is contacted to meet with CG investigators upon arrival on scene.

CG investigators on scene contact MSO LA/LB, verify information set forth in scenario, identify spill path, and identify probable RP as Mr. Richard Wealthman. Richard Wealthman accepts responsibility for the incident, and hires Newport Shipyard to salvage the vessel and Zoom & Boom for the clean-up. MSO LA/LB investigators on scene continue routine evidence gathering and monitoring of situation.

Resources and estimated response time of hired cleanup and salvage contractors is as follows:

Newport Harbor Patrol	+0.4 hours
2 Response boats (Zoom & Boom)	+2.5 hours
45 ft Salvage vessel (Newport Salvage)	+2.5 hours

ACP Comms plan in standby.

District Eleven public affairs staff briefed by MSO LA/LB in the event of inquiries.

**2) 2-3 hours:**

Health and safety issues of site safety plan for response personnel, cleanup contractors and community-at-large identified and addressed by CG and local authorities on-scene.

MSO LA/LB receives report from CG Investigators and F&G on scene that early preventative booming by Newport Harbor Patrol has all of the diesel fuel, with the exception of minor sheen, contained within the sunken vessel's slip, that the onboard fuel tank is not leaking and that no additional residual fuel is leaking from the engine compartment. F&G confirms a low threat risk to wildlife.

RP/CG, with the assistance of local public works officials, verifies that there are no water intakes in the area.

Further questioning of RP reveals that the cause of the sinking was due to earlier plugging of the vessel's overboard discharge port for maintenance purposes which had been forgotten.

Local residences notified of cleanup zone, safety zone established if necessary, Broadcast Notice to Mariners made, if necessary.

**3) 3-4 hours:**

Response resources arriving on-scene; Zoom & Boom fast response vessels with related recovery and cleanup equipment onboard, Newport Salvage 40 foot salvage vessel with related equipment.

Cleanup and salvage staging operations initiated.

Planning strategy by RP based on input from CG, F&G, Contractors and current information. Staging area established adjacent to sunken vessel slip #44.

Vessel recovery and clean-up operations commence. Placement of additional hard booming with sorbents to separate affected areas from vessels involved and to minimize sheening. Salvage vessel commences lifting of sunk vessel. Clean-up contractor works sorbents, and commences slip cleanup.

**4) 4-6 hours:**

Most of the heavy waterborne oil has been removed. The M/V "No Problema" has been raised and is undergoing hull stain and deck cleaning.

**5) 6-8 hours:**

Waterside cleanup 90% completed and all diesel, except for light sheen, recovered from water. M/V "No Problema" deemed clean and stable.

**6) 8-10 hours:**

Final details of clean-up operation continue. Contractor commences removal of solid sorbent waste from water to authorized containers in response vessels for later transport.

Evaluation of cleanup and meeting of CG, RP, F&G, and cleanup contractors conducted on scene. The meeting has determined that only small amounts of light sheen remain in the water with all heavy staining removed from adjacent areas. It was also determined that the M/V "No Problema" was

satisfactorily cleaned and stabilized with all fuel and oils removed. The vessel would be allowed to be taken in tow to repair facility pending continued investigation and possible civil penalties.

Final determination of meeting members after thorough waterside inspection is that all cleanup efforts can be secured.

#### **4734.1 Potential Shortfalls**

1. General slow response of contractors to scene for rapid boom deployment as a key issue.
2. All aspects of cleanup operations should be conducted and concluded by all parties involved in a response including federal, state, local agencies; responsible party; and the contractor.

#### **4735 Potential Resource Shortfall Analysis**

Potential resource shortfall analysis, per COMDTNOTE 16471 dated 14 Sep 1991, was undertaken by planning participants to determine improvements needed to enhance preparedness during the first 72 hours of a spill. Two separate approaches were taken in this analysis. First, general shortfall areas were identified which included technology, personnel preparedness, access, etc. Second, evaluations based on spill scenarios were used to assess the adequacy of shoreline resource protection responses. The objective was to evaluate the correlation between availability of protection resources and personnel and the impact of spills. Thus, the analysis included timing issues (i.e. deployment, resource location) as well as actual physical resources.

#### **4736 General Shortfall Categories**

The following categories provide convenient categories of the general shortfalls.

##### **4736.1 Beach Access Shortfalls**

Catalina Island has many sites that are only accessible by boat or by repelling down cliff faces. Also, Catalina has limited roads, especially around the coast line. Movement of equipment, supplies and personnel would be very difficult.

A similar situation exists on San Nicholas Island with the exception that there are numerous roads. Both islands have landing strips, although, Catalina's is very limited in the size of planes it can handle.

##### **4736.2 Technology Shortfalls**

Booming and collection technology is insufficient to keep oil from vital (sensitive) areas in strong currents, e.g., tidal marshes.

No technology exists to exclude oil from the many miles of coastal sand beaches with moderate to high energy regimes.

Zones, in State waters, have not yet been identified for dispersants "quick approval."

The dispersants stockpiled in this area have little efficacy on the oils most likely to be spilled in this area.

Permitting of in-situ burning is still unresolved.

No fire-boom is available for in-situ burning.

##### **4736.3 Wildlife Care and Rehabilitation**

There are substantial shortfalls for wildlife care and rehabilitation. This is an urgent issue because of level of concern and volatility of public toward this area.

The OSPR Guidance Document "For Oiled Wildlife Care" released in 1993 reported on the existing capabilities of wildlife rehabilitation organizations in California to rescue, transport, clean, treat and rehabilitate oiled marine wildlife. The results were based upon surveys, site visits by OSPR staff, and information provided by the organizations.

In a separate analysis, OSPR used information concerning the numbers of marine wildlife rescued during recent west coast oil spills, the distribution and abundance of California's marine birds and mammals, their vulnerability to oil, and their proximity to areas of special concern for oil spill risk to project probable rehabilitation case loads. The differences between existing capabilities and projected case loads represent the shortfall in oil spill response capabilities at this time.

California legislation enacted in 1993 would create an oiled wildlife care network by 1997 if funding is forthcoming. At the present time, however, under any spill scenario, existing capabilities fall far short of anticipated wildlife rehabilitation case loads.

Facilities and shortfalls for the Los Angeles and Orange County Planning areas have been identified as follows:

Los Angeles. Existing emergency capabilities can support care for about 750 birds within 48-72 hours. OSPR has projected rehabilitation case loads of up to 2000 birds. There is a deficiency of supplies, materials, equipment, and facilities for providing care for about 1250 birds.

Orange County. Existing emergency capabilities can support care for about 25 birds within 48-72 hours. OSPR has projected rehabilitation case loads of up to 1000 birds. There is currently a deficiency of supplies, materials, equipment, and facilities for providing care for about 975 birds.

It is likely that all facilities in both areas would be mobilized in the event of a spill. The projected joint case loads would be 3000 with current resources for about 775 cases leaving a shortfall of about 2225 for Los Angeles and Orange County areas combined.

Marine mammal care facilities are available at the Marine Mammal Care Facility at Fort MacArthur. However, seasonally the facility reaches capacity. There are no provisions to care for additional oiled marine mammals.

#### **4736.4 Personnel Shortfalls**

There is no mechanism for maintaining a large cadre of trained cleanup responders. Due to OSHA and other regulations, there is often a lag-time in cleanup response while mandated training is conducted.

The number of field staff in OSPR is minimal relative to the demands inherent to large spills, and quite inadequate in the event of either a SONS spill or two concurrent spills.

The mechanism for incorporating volunteers is evolving very slowly. Dealing with volunteers is sensitive issue similar to that of wildlife care. It is important to develop a plan to give a positive and proactive opportunity to convergent volunteers. Due to extensive training requirements, few of these volunteers can be involved in hands on wildlife work. So, it is important to identify other roles in which they can function and the appropriate training necessary. Supervision and liability issues must also be addressed.

#### **4736.5 Pipelines**

Shore side facilities account for an increasing number of recent spills. The majority of these have been from pipeline breaks. Typically, these breaks are the result of aging and/or poorly maintained lines and

facilities. Better technology is needed to detect potential leaks and to enable quicker shut down of the pipeline when breaks occur.

There is poor contingency (response) planning for inland pipeline spills that may affect marine waters and coastal marshes. Great amounts of time have been spent planning for pollution threats from the ocean-side of marshes. Yet, very little time has been spent planning for shore side oil threats, which are more common than ocean-side threats.

### **4737 Scenario Driven Shortfall Analysis (Northern Sector)**

#### **4737.1 Introduction**

Requirements to conduct a shortfall analysis are included in the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Act), and U.S. Coast Guard (USCG) Commandant Note 16471. Under Commandant Note 16471, dated September 30, 1992, the Area Committees were tasked to "...describe shortfalls, including administrative and policy shortfalls..." Section 8670.19 of the Act requires "...a comprehensive review of all oil spill contingency plans for each area to determine if deficiencies exist in equipment, personnel, training, and other areas determined to be necessary to ensure the best achievable protection of the coastline." Given the joint need for this information by both USCG and Dept. of Fish and Game Office of Oil Spill Prevention and Response (OSPR), a decision was made by senior management of both organizations to work together to identify potential shortfalls.

The Shortfall Analysis Subcommittee met on May 13, 1996. Subcommittee members include individuals from USCG, OSPR, County Government, Clean Seas, Marine Spill Response Corporation, oil company representatives, and others. All decisions regarding the scenarios were based on consensus of the Subcommittee. For this year's shortfall analysis the Subcommittee ran two oil spill tabletop scenarios, a most probable scenario in Morro Bay and a reasonable worst case scenario in the Santa Barbara channel. Shoreline protection resources were calculated only for the highest priority environmentally sensitive sites, that is, "A" priority sites in the Area Contingency Plan (ACP). Additionally, response equipment needed for shoreline protection was based upon response strategies published in the ACP.

#### **4737.2 Summary of Morro Bay Scenario and Trajectory**

The most probable discharge scenario was staged in Morro Bay, San Luis Obispo County, and involved a fully loaded (10,000 gallon/approx. 240 barrels) fishing vessel losing power near the entrance into the Morro Bay harbor and alliding with the northern breakwater during late morning, 1000 hours, with average winter weather, at the beginning of a flood tide. The Subcommittee assumed the entire diesel fuel load was spilled (10,000 gallons). We also assumed the vessel owner was not a contingency plan holder. Because of the non-plan holder status, we assumed the USCG would federalize the response, and thus would obtain the necessary funding.

The oil spill trajectory was determined by using local knowledge of average winter currents, winds, and tides for the Morro Bay area. The trajectory for this most probable scenario in Morro Bay, using a 2 knot average current, showed within the first three hours into the incident, oil would spread along a path approximately three nautical miles inside Morro Bay. We calculated after the first three hours, approximately 30 percent of the diesel would have evaporated, leaving approximately 170 barrels (7,140 gallons) in the environment. We determined the remaining 170 barrels would be primarily non-recoverable because it would be mostly sheen at that point and sheen is generally non-recoverable. However, we assumed some sheen recovery using sorbents might be possible.

#### **4737.3 Shortfall Analysis Results from Morro Bay Scenario**

The Subcommittee agreed there would probably be a one hour lag time after notification of the spill, before USCG and/or OSPR would be on scene to access the situation. Within the first hour USCG Search and Rescue Detachment (SARDET) in Morro Bay would initiate search and rescue. Currently Morro Bay

SARDET personnel are not trained in oil spill response. It would then take three to four hours (from initial notification) before USCG from Santa Barbara Marine Safety Detachment would arrive on scene.

The Subcommittee assumed worst case, including the Morro Bay Harbor Department not being able to deploy the 2,000' of global boom that was staged in Morro Bay at the time of the analysis. We assumed the Harbor Department would be preoccupied with the grounded vessel and with search and rescue. Additionally, Sylvester Tug in Morro Bay is available 75% of the time to deploy boom (Sylvester Tug maintains 1,200 feet of harbor boom). However, for this scenario, we assumed worst case that Sylvester Tug was occupied.

The Subcommittee determined that within the first hour of the spill two subsites within Morro Bay (ACP #'s A-4-119.1 cannery natural eddy, and A-4-119.2 Inn at Morro Bay natural eddy) would be oiled. It must be noted that all of Morro Bay is an "A" priority site. The first two sites oiled in this scenario, ACP #'s A-4-119.1 and A-4-119.2 are not biologically unique sites within the back bay, but are natural catchment areas. Within 1.5 hours of the spill we determined sites ACP #A-4-119.3, State Park Marina, an economically sensitive site and ACP #A-4-119.4, Morro Bay marsh habitat, would be oiled. Within 2.5 hours of the spill we determined ACP site #A-4-119.5, Chorro Creek inlet would be oiled and by hour 3, Los Osos Creek inlet, ACP site #A-4-119.6 would be oiled.

By hour 4 of the scenario Clean Seas Oil Spill Response Vessel (OSRV) Mr. Clean would arrive along with a trailer of sorbent boom, skiffs, and personnel. Additionally, Clean Seas would notify and contract with the Fisherman's Oil Spill Response Team (FORT). Clean Seas, after initial notification, would make arrangements over the phone so that boom deployment in the back bay could begin as soon as they arrive on scene, four hours after notification.

By hour 5 of the scenario ACP site #'s A-4-119.7, Sweet Springs Marsh and A-4-119.8, Cuesta by the sea inlet, would be impacted. However, Clean Seas would be on scene by hour 4 and would deploy the following response equipment to protect the sites: ACP site #A-4-119.7 requires 50' of harbor boom and 4 people; ACP site #A-4-119.8 requires 200' of sorbent boom and 4 people.

Responders would re-evaluate the situation at the ebb/slack tide (approximately hour 6) to determine if further oiling of ACP site #'s A-4-119.3, A-4-119.4, A-4-119.5, and A-4-119.6 could be prevented as the tide recedes. If further oiling could be prevented, Clean Seas would deploy the following response equipment: ACP site #A-4-119.3 requires 1,200' sorbent boom, 2 skiffs, and 4 people; ACP site #A-4-119.4 requires 5,000' sorbent boom and 4 people; ACP site #'s A-4-119.5 and A-4-119.6 each require 50' sorbent boom and 4 people.

#### **4737.4 Shortfalls Identified from Morro Bay Scenario**

The Subcommittee identified two shortfalls, based on this scenario. Since we assumed the fishing vessel was a non-plan holder, there are no regulatory planning standards to compare to. However, for purposes of conducting this shortfall analysis, the regulatory planning standard for facility transfer areas and the Santa Barbara Channel was used. This regulatory planning standard was used because Morro Bay is near a facility transfer area and because this planning standard is more stringent than the planning standards for regulated vessels. This regulatory planning standard requires a facility to deliver 12,500 barrels/day capacity of spill response equipment to the oil spill within 12 hours of notification. For this scenario, the Subcommittee determined response equipment would be deployed within the 12 hour required time frame, and the regulatory planning standard would be met. However, this scenario showed a 12 hour response time to be inadequate and sensitive resources in the bay would get oiled. Thus, one of the shortfalls identified was dedicated, trained personnel to deploy response equipment within the first two hours of a spill in Morro Bay may not be available, under a worst case scenario (e.g. when Sylvester Tug, Harbor Department, and USCG Morro Bay SARDET are not available). Clean Seas, the closest dedicated Oil Spill Response Organization, is three hours away.

The second shortfall identified in this scenario was if large numbers of birds become oiled, San Luis Obispo County does not have a designated, permanent washing/rehabilitation facility. Wildlife rehabilitators

currently utilize their homes. The local wildlife rehabilitation group Pacific Wildlife Care, member of the Oiled Wildlife Care Network, can currently wash/rehabilitate 25 birds.

#### **4737.5 Suggestions to Remedy Shortfalls Identified from Morro Bay Scenario**

To remedy the spill response personnel shortfall, OSPR and USCG are currently in the planning stages of training (health and safety and boom deployment training) the USCG Search and Rescue Detachment (SARDET) and the Harbor Department in Morro Bay. Morro Bay SARDET currently has enough personnel to conduct both search and rescue and spill response. Additionally, the USCG recently delivered to Morro Bay a new trailer with 2,000' of new 20' Kepner harbor boom (including hardware e.g. anchors, rope, etc...), 100' of 8" mini boom, sausage sorbent boom, sorbent pads, and personal protective equipment. We are also coordinating with the Morro Bay Task Force, an interagency/community group, in soliciting ideas from this group as to how to alleviate this shortfall.

Regarding the wildlife facility shortfall, the San Luis Obispo/Santa Barbara County areas are slated to be augmented with a centralized wildlife facility in fiscal year 97/98.

#### **4737.6 Summary of Santa Barbara Channel Scenario and Trajectory**

The worst case discharge scenario was staged in the Santa Barbara shipping channel. The scenario involved a collision between an oil barge and a container vessel transiting approximately 4.5 nautical miles off Santa Cruz Island at night, 2200 hours, in dense fog. The Subcommittee assumed a total release of the barge's cargo, 2,500 barrels of bunker fuel oil. We also assumed the barge was not a plan holder and as such, USCG federalized the spill. The oil spill trajectory was determined by using local knowledge of average spring currents, winds, and tides for the Santa Barbara channel area. Wind out of the southeast and a strong nearshore westward current moved the majority of the oil to the northwest.

The trajectory for day one of the spill showed patches of oil would reach the northeast side of Santa Cruz Island within approximately four hours and would next reach the north side of Anacapa Island. We determined on day one, the majority of the oil would spread north/northeast from Mandalay State Beach area north to the Ventura River. By day two, we determined the oil would continue to move northwest to just northwest of Rincon Point. By day three the oil would continue to move northwest to East Beach area.

#### **4737.7 Shortfall Analysis Results from Santa Barbara Channel Scenario**

By hour 2 of the incident Clean Sweep (Clean Seas' advancing skimmer) and Mr. Clean II [Clean Seas Oil Spill Response Vessel (OSRV)] would be on scene. By hour 5.5, Mr. Clean III OSRV would be on scene and by hour 11 Mr. Clean OSRV would be on scene. These three OSRV vessels maintain a total of 15,000' of ocean boom and have a derated skimming capacity of 35,000 barrels/day. It would be up to the Unified Command to request the use of the non-cascadable OSRV's, the Mr. Clean III and Mr. Clean, which would have to be moved outside their normal risk zones to respond to this spill. Within 2 hours Marine Spill Response Corporation (MSRC) would have OSRV California Responder underway. By hour 3, MSRC California Responder would be on scene with a derated skimming capacity of 10,500 barrels/day with a 4,000 barrel storage capacity. Also at this time MSRC would be mobilizing, from Port Hueneme, 16,500' of ocean boom to be distributed to the VOSS I and II systems and vessels of opportunity as needed. Clean Seas would also supply 27,000' of shoreline boom and MSRC would supply 6,000' of shoreline boom. Additionally, if needed MSRC could have, within 24 hours, an additional 20,000' of shoreline boom, which would be brought from San Diego, Richmond, and Eureka.

By hour 4, the Subcommittee determined patchy amounts of oil would reach the northeast side of Santa Cruz Island, ACP site #A-4-062, and the north side of Anacapa Island, ACP site #A-4-068. The habitat types on these sites are classified as exposed rocky cliffs. On this habitat type, oil is held offshore by waves reflecting off the steep cliffs and the most resistant oil would remain as a patchy band at or above the high tide line. The strategy for these sites is open water containment and recovery.

By hour 20, three sandy beaches, each a "B" priority as far as environmental sensitivity, would be impacted, ACP site #'s B-4-081, B-4-080, and B-4-036 (Mandalay, McGrath, and San Buenaventura State Beaches respectively). The response strategy for these sites is open water containment and recovery and beach pre-cleaning (removing debris prior to oiling). Since these are "B" priority sites, the needed response equipment is not part of this shortfall analysis calculation. However, the Subcommittee still took these sites into consideration. For beach pre-cleaning, the California Conservation Corps would be contracted with.

By hour 20, oil would reach the Santa Clara River mouth, ACP site #A-4-038. However, by hour 12, a sediment dike would be constructed by a Clean Seas' contractor (such as Clark Engineering Construction, Inc. based in Ventura), to prevent impact. Ventura Harbor, ACP site #A-4-037, would also be impacted within 20 hours but Clean Seas would deploy 1,500' of harbor boom immediately to protect the harbor. The Ventura River mouth, ACP site #A-4-035, would also be impacted within 20 hours. This strategy also calls for a sediment dike for protection, which would be constructed by hour 16, by a Clean Seas' contractor.

By the second day, hour 30 into the scenario, oil would reach Rincon Point/Creek, ACP site #A-4-033. Clean Seas would deploy boom across the creek or a Clean Seas' contractor would construct a sediment dike to protect the site. The following "B" priority sites would be impacted this second day, Rincon Point to Pitas Point ACP site #B-4-034, and "wave" area northwest of Rincon Point ACP site #B-4-032. The response strategy for these sites is open water containment and recovery and beach pre-cleaning. As stated above, since these are "B" priority sites the needed response equipment is not part of this shortfall analysis calculation. However, the Subcommittee still took these sites into consideration.

By day three, hour 50 into the scenario, the oil would continue to migrate northwest to Carpinteria State Beach and Creek, ACP site #A-4-031. Offshore containment and recovery and building a sediment dike would be the strategies employed. Carpinteria salt marsh, ACP site #A-4-030, requires a sediment dike to be constructed, as well as secondary protection, lining the entrance of the marsh with 1,000' of harbor boom. Loon Point and Elyse Creek, ACP site #A-4-079; Fernald Point and creeks, ACP site A-4-078; and East Beach area and creeks, ACP site #A-4-027, require offshore containment and recovery, building sandbag dikes, and beach pre-cleaning. Sandyland area, ACP site #B-4-029 was taken into consideration but is not part of this shortfall analysis calculation.

#### **4737.8 Shortfalls Identified from Santa Barbara Channel Scenario**

The Subcommittee identified one shortfall based on this scenario. As with the Morro Bay scenario, Santa Barbara and Ventura Counties do not have a permanent, designated wildlife washing/rehabilitation facility for large numbers of animals. Wildlife rehabilitators currently utilize their homes. Currently the local wildlife rehabilitation group, Santa Barbara Wildlife Care Network, member of the Oiled Wildlife Care Network, can wash/rehabilitate 10 birds.

The regulatory planning standards for vessels operating in facility/transfer areas or the Santa Barbara Channel area requires a vessel to deliver 12,500 barrels/day capacity of spill response equipment to the oil spill within 24 hours of notification. In this scenario this regulatory planning standard was met. However, the Subcommittee did identify the one shortfall discussed above.

Additionally, it should be noted that existing mechanical recovery of oil is often inefficient or ineffective along the open coast in many high energy and most high wind-driven seastates. This leads to the loss of oil to the environment including oiling of beaches if the physical forces acting on the oil bring it toward shore. Equipment and personnel are brought to the incident, but often, some shoreline impact occurs. Thus, we have a technology shortfall. This technology shortfall was not addressed by the Subcommittee this year, but should be discussed in future analyses.

#### **4737.9 Suggestions to Remedy Shortfalls Identified from the Santa Barbara Channel Scenario**

As stated for the Morro Bay scenario, the San Luis Obispo/Santa Barbara County areas are slated to be augmented with a centralized wildlife facility in fiscal year 97/98.



## **4738 Scenario Driven Shortfall Analysis (Southern Sector)**

This analysis permits a critical look at response capacity for protection of adjacent resource sites in the face of an expanding oil slick.

### **Rationale for Spill Scenario Selection**

Since no one spill realistically taxes the response capacity along the entire reach, several representative scenarios were selected. The three scenarios included were selected to evaluate response capacity to protect significant resource sites at different locations along the coast. One scenario was selected to evaluate protection responses for each of the following areas: Santa Monica Bay (Malibu Lagoon); L.A.-Long Beach harbor area (Cabrillo wetlands & Anaheim Bay); and Orange County (Anaheim Bay/Bolsa Chica).

A further criterion for scenario selection was proximity to sensitive resources. Spill scenarios with origins near significant ecological resource sites were the best test of response capacity because impacts were more imminent. This criterion influenced the selection of scenarios for Los Angeles-Long Beach area and Orange County.

### **Spill Scenarios Selected**

Scenarios were selected from among the trajectories included in the Clean Coastal Waters' Regional Resource Manual (RRM, section 202). Scenarios were selected to evaluate protection of different sensitive resource sites in the ACP's.

For example, since Anaheim Bay has preeminent ecological value in this region, a scenario was selected from among the three scenarios in the RRM having rapid impacts on Anaheim Bay:

100,000 bbl spill at the eastern end of the Long Beach  
breakwater (see CCW RRM, page 202-46)

This scenario (designated Scenario 3, hereafter S-3) was selected in preference to one at the site of the American Trader spill. This scenario permits evaluation of rapid response necessary to deploy protection at Anaheim Bay and Alamitos Bay simultaneously. Thus, it was deemed the more demanding contingency for the Orange County coast.

For the L.A.-Long Beach area, a spill at the mouth of Dominguez Channel was used to evaluate fast response to minimize impacts at Cabrillo Wetlands and inner Cabrillo Beach. A 2000/87,500 bbl spill at mouth of Dominguez Channel L.A. Harbor (see CCW RRM, page 202-28/202-48) was designated Scenario-2 (S-2). For the Santa Monica Bay area, the third scenario in ACP Appendix III was selected: a 3000 bbl North Slope Crude spill at El Segundo marine terminal. A similar scenario in the CCW RRM (pages 202-14,40) for volumes of 2000 and 250,000 bbl was used to compute times of impact at sites in that area. This scenario was selected because of its high likelihood and because it is already specified for Santa Monica in the ACP.

### **4738.1 Application of Scenarios to Shortfall Analysis**

Once a spill scenario was selected, the zone covered in each 24 hour increment was used to calculate a rate of oil movement per hour. The distance from the spill origin to each site was also measured. From these, the time from spill to impact was calculated. Differences in rates of oil movement up-coast verses down-coast were included. However, if there was any uncertainty about appropriate rates, the fastest rate was used to develop the faster time of projected impact. (It is interesting to note that the projected time and extent of area covered by slicks is not substantially different based on volume included in the scenario; see RRM, section 202.)

Some sites could be impacted by more than one scenario. In that case, both projected impact times were considered in the matrix. This was most evident at Anaheim Bay, where large spills near the Bay require commitment of significantly more resources (eg. Lori skimmers) to deal with large volumes of convergent oil.

The sites are listed on the matrix. Calculated time of impact is entered for the spill scenario(s) which impact the site. Resource/personnel needs taken from ACP's and RRM were entered in the resources/personnel needed reasonably capable of deployment within the times indicated. A shortfall is identified whenever resources/personnel can not realistically deploy before the projected time to impact.

#### Matrix Shortfall Analysis for Spill Scenarios

In general, the shortfall matrix reemphasizes the inadequacy of current booming technology to protect moderate and high energy shorelines from oiling. For this reason most sites have no protective measures proposed and no site-specific shortfalls. Pre-cleaning and cleanup are the only actions available.

A shortfall was identified at Cabrillo Wetland. Although boom is stationed on site, the best protective response for this site would be a sediment dike. There is no clear mechanism to get equipment to that site nor is there culvert available to construct a sediment dike within the projected four to five hour response frame. Such equipment and material must be pre-identified and arrangements firmed to enable rapid response. Other sites requiring sediment berming are likely to be impacted at sufficiently extended time frames that any number of sources of equipment and material could be mobilized to meet needs.

At Anaheim Bay where large tidal exchanges maximize opportunity for oil entrainment, rapid skimmer deployment on site is a possible shortfall. While deployment of protective boom to this and sites like Cabrillo Beach and Wetlands is feasible within projected time frames, moving skimmers to sites will require additional time. Whenever there is a substantial tidal exchange capable of entraining pooled oil, rapid arrival of skimmers will be essential to effectiveness of booming.